THE POLAR TIMES

NORMAN VAUGHAN CONQUERS HIS NAMESAKE MOUNTAIN.

SECRETARY'S LETTER

Last December I returned with my wife Johanna to Antarctica for a cruise on the Russian icebreaker "Dranytsin." Like many "Old Polar Explorers," I had viewed tourism in Antarctica with some skepticism. However, we had the time of our lives as guest lecturers for Quark Expeditions—more fun than when I was there working. So, for all of you OAEs, I recommend that you all take a tourist trip to "The Ice" and show your spouse what you have been talking about for the last 30 years.

In pursuit of the society's purpose of preserving the "American Heritage of Polar Exploration," we are investigating the possibility of sponsoring an oral history program within the society. The intent of the program is to interview the many Americans and Canadians who were involved in the exploration and development in both polar regions. We do not have all the details yet, but hope to have a program outlined within the next six months. We will be looking for volunteer interviewers at that time.

Finally, I need some help! The Board of Governors has created a Membership Chairman/Treasurer pro bono position. The job will involve accepting membership donations, tracking membership roles and paying the bills. We need a volunteer with a computer. Those interested may contact me directly.

Keep those articles coming!

Brian Shoemaker

EDITOR'S LETTER

Your response to the resurrection of *The Polar Times* has been gratifying. We have so much to publish, we're considering a larger issue or increasing to four issues a year. Your feedback on these ideas will help us determine what we should do. Thank you so much for your input and support.

Della Weston

American Polar Society

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CONTENT

The Polar Times
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BRIAN SHOEMAKER, Secretary
P.O. Box 692, Reedsport, OR 97467
DELLA WESTON, Editor
ARTHUR DUMONT, Asst. Editor

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The Polar Times

American Polar Society, Spring-Summer 1995

Byrd Explorer Finally Climbs His Mountain

***The Washington News*, Jan. 7, 1995, p. A4**—"Dream big and dare to fail," Norman Vaughan said yesterday. The 89-year-old Alaskan dog musher knows the truth of his advice.

It took him more than 65 years, $1.5 million, one failed attempt that ended in a plane crash and nine days of climbing to reach the peak named after him by polar explorer Adm. Richard Byrd.

On Dec. 16, Mr. Vaughan managed to scale the 10,302-foot Mount Vaughan in Antarctica's Queen Maud Mountains, about 240 miles from the South Pole, and celebrate his birthday three days early by lighting 89 fourth of July sparklers.

Because of a fused ankle and a knee replacement, Mr. Vaughan had to climb straight up, using 7,128 footsteps hacked out of the ice with a pickax by the lead climber, Vern Tejas.

Along the way, he and his six-member party communicated via electronic mail with school children studying the polar regions.

Mr. Vaughan told a press conference at the National Geographic Society, which helped sponsor the trip, that the sparklers were a gift from his wife, fellow climber Carolyn Vaughan. He said she told him "the whole mountain was Norman's birthday cake, with the snow being the frosting."

He dedicated his climb to Adm. Byrd and two Harvard University roommates, the late Edward Goodale and Freddy Crockett. The three dropped out of school in 1928 to work as dog handlers in Adm. Byrd's 1928-30 Antarctic expedition, with Mr. Vaughan as chief dog musher.

"There was the headline: 'Byrd to the South Pole.'" Mr. Vaughan recalled from his junior year at Harvard. "I knew I had to go, so I went to Byrd's home in Boston and rang his bell."

After the 18-month expedition, Mr. Vaughan's life literally went to the dogs. He commanded 425 dogs in World War II as part of the U.S. Army Air Corps Search and Rescue. He raced in the Olympics in 1932, the only year the games featured dog racing.

Thirteen Iditarod sled-dog races later, Mr. Vaughan retired at the age of 84 with awards like True Grit and Most Inspirational Musher in his trophy case.

Between races were stints during the Korean War, in the Pentagon's Psychological Warfare Department and later as a snowmobile salesman in Boston. He even taught Pope John Paul II how to mush.

But the remote Mount Vaughan remained inaccessible to its namesake until the late 1980s, when a private adventure travel company established air service.

Mr. Vaughan's first attempt to climb the mountain the previous year ended when a DC-6 supply plane crashed. Sticker, Magoo, Pudge and Pandy, four of his sled dogs, wandered off after the crash and never were found.

He carried a stuffed toy husky, Zippy, to the summit in tribute to them and all the Antarctic sled dogs "who never gave up. They have been my inspiration," he said of a bygone era.

An international treaty effective April 1, 1994, banned sled dogs from the continent to protect indigenous wildlife.

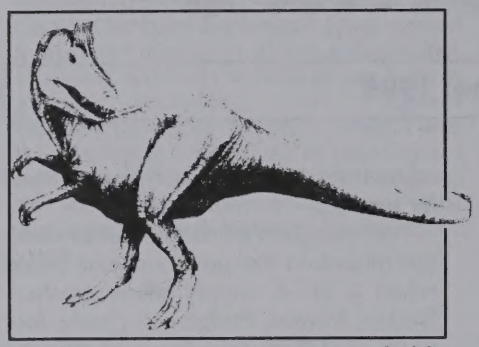
National Geographic made a documentary of Mr. Vaughan's climb and will televise it July 30 on TBS. □

BYRD ANTARCTIC EXPEDITION 1929

Seated: Mike Thorne, Freddy Crockett, Dr. Laurence Gould (member, Board of Governors, APS), Norman Vaughan. Standing: Eddie Goodale, John O'Brien

Antarctica Was Home to Dinosaurs

Scientists uncover remains of meat-eater near South Pole



Sketch of what the dinosaur probably looked like.

Washington (AP), May 6, 1994—Fossils of a unique dinosaur uncovered near the South Pole show that large meat-eating lizards roamed Antarctica 200 million years ago, when that frozen continent had a climate like today's northwestern United States.

Cryolophosaurus elioti was named for researcher David Elliot of OSU's Byrd Polar Research Center, who discovered the fossil.

In December 1990, Elliot and colleague Richard Hanson were on the slope of Mount Kirkpatrick about 400 miles from the South Pole. The scientists were looking for volcanic rocks associated with the breakup 180 million years ago of a gigantic continent geologists called Gondwanaland.

"I walked around a corner. Lo and behold, there were three very strange objects embedded in the rock. They were obviously something different—long, slightly curved objects and big huge, fist-like knuckle objects," Elliot recalled yesterday. "Serendipity strikes again."

Elliot and Hanson realized they had discovered something important. The fossils were embedded in rocks from the Jurassic Period, strata that have yielded few Antarctic dinosaur fossils.

"The unexpected is always exciting. Even without knowing quite what it was, the mere fact of there being bones in that part of the stratigraphic succession made it an interesting discovery," Elliot said.

The scientists notified William Hammer of Augustana College in Illinois, who was leading another expedition in a search for vertebrate fossils. Hammer and his team excavated the find—a skull, a femur, pelvis, tibia and fibula (foreleg bones) and two metatarsals (feet bones) and many vertebrae.

Since finding the fossils in 1991, Hammer and his group have assembled the pieces and found that they are from a previously unknown dinosaur species, a meat-eating animal with large jaws, sharp teeth and a distinctive bony crest on top of its head.

"We called it *Cryolophosaurus elioti*, or frozen crested reptile," Hammer said. "That's because it's got a crest on its head, and we almost froze to death collecting it."

The animal was about 25 feet long, apparently walked on large hind legs and had small forefeet, a long tail and large powerful jaws, said Hammer. It was similar to another meat-eater called allosaurus.

"This is the first dinosaur find on the mainland of Antarctica and is the highest latitude find," said Hammer. "They were only about 400 miles from the South Pole."

This shows that Antarctica then had a climate mild enough to support large animal life, including herds of plant-eaters that would have been the prey of the crested reptile, he said.

Mixed among the bones of the meat-eater, said Hammer, were leg and neck bones from a prosauropod, a type of plant-eating dinosaur that has been found on other continents.

At the time the animal lived, Antarctica was still attached to other southern continents. A process called continental drift caused the large land masses to slowly separate from a single body over millions of years.

Hammer estimates that the site of his dig was at about 65 degrees south latitude 200 million years ago. It now is at about 85 degrees.

"This is a spectacular new find," said Paul Sereno of the University of Chicago. "It's really the first good look we've had at what existed in Antarctica during the Jurassic Period." □

Navy's Role In Rescue Finally Told

Pilots lost on icecap in 1942

By Lesley Tritschler, News Journal, Nov. 29, 1994 (contributed by Billy "Ace" Baker)—Ray Petschonek wants to set the historical record straight.

In 1942, when Petschonek was a 31-year-old aviation machinist's mate attached to a Navy amphibious plane, he and his fellow crewmates participated in a dramatic, six-day rescue of Army-Air Force pilots stranded on Greenland's icecap.

The 25 pilots, on board two B-17s and six P-38 fighters, were headed to Iceland from an Army base on the west coast of Greenland when they ran into heavy fog and had to turn back.

But the Greenland base also was blanketed in fog. The pilots had no bearings at all.

They landed safely on the icecap but had no idea of their location. It was July 15, 1942.

That's when Petschonek and his crewmates got involved. With two other planes, they began searching. Three days later, Petschonek saw a black spot on the ice through his binoculars, about 50 miles away, and he realized it was the downed planes.

Petschonek and the others dropped sleeping bags, canned food and whiskey, then returned to base to fly in a rescue crew.

The rescuers couldn't land near the downed planes, so the crewmen walked out, while Petschonek and his crewmates assisted from the air as the men picked

Salvagers Given One More Week To Fly B-29 Home

***The Columbus Dispatch*, Aug. 26, 1994 (contributed by Peter Anderson)**—Hours before a dedline expired, an American salvage team yesterday was given another week to fly home a vintage B-29 aircraft stranded in northern Greenland 47 years ago.

The team has been repairing the abandoned bomber and is waiting for good weather to fly the plane from a frozen lake about 620 miles south of the North Pole to the nearby US. Air Force base in Thule, Greenland. □

(See the companion story, Fall/Winter '94 issue of The Polar Times., *p. 7)*

Vet Keeps Tabs On Runners

Alaska's dog race showcases world's best marathon

by David Lore, science reporter, *The Columbia Dispatch,* March 12, 1995 (contributed by Peter Anderson)—Fifty-six teams this weekend are in the final stages of the trans-Alaskan Iditarod Trail Sled Dog Race, an event that showcases the world's greatest marathon runners.

"These are the supreme endurance athletes," said Kenneth W. Hinchcliff, a research veterinarian at Ohio State University and a race volunteer since 1992. "I don't know of anything that matches the Alaskan sled dog."

Since 1973, the 1,161-mile Iditarod has emerged as the Olympics of sled dog racing, pitting dogs and drivers against the brutal Alaskan winter. Yesterday's stretch had a wind chill of 60 degrees below zero. The race began March 4 in Anchorage and ends this week at Nome.

It's a race, however, that also has been hounded by controversy. Animal rights groups contend that the Iditarod literally runs some dogs to death and causes hundred of injuries to others.

The Humane Society of the United States last year called for an end to the race and several major sponsors have pulled out in recent years, at least in part because of the criticism.

In response, race organizers asked Hinchcliff to do electrocardiograms on about a third of the dogs before last year's race. All 1,260 dogs this year were tested during the complete pre-race physical.

A specialist in exercise physiology, Hinchcliff also travels frequently to Alaska for research. He and University of Illinois veterinarian Peter Constable have been using Alaskan sled dogs to study what is called "athlete's heart," a normal enlargement of the heart in response to intense exercise, Hinchcliff said.

Even with rest periods and frequent checks by veterinarians, hundreds of dogs each year have to be removed during the race because of exhaustion or other ailments.

The Humane Society said it "has concluded that long-distance competitive mushing entails an unacceptable probability of risk of death and/or injury to the dogs involved."

The furor erupted after six dogs died during the 1993 race. One dog died last year, and an Iditarod spokesman yesterday reported no fatalities so far this year.

"These dogs are specially bred for this program and trained for this purpose, so they're extra well-adjusted to what they do," Hinchcliff said. They are good subjects for research on athlete's heart just because their lifestyle leads to an enlargement of the heart, a natural adaptation that gives the dogs more stamina, he said.

Changes have been made in the race in recent years, but none has satisfied the Humane Society.

The best way to reduce risks, Hinchcliff said, is to slow the pace.

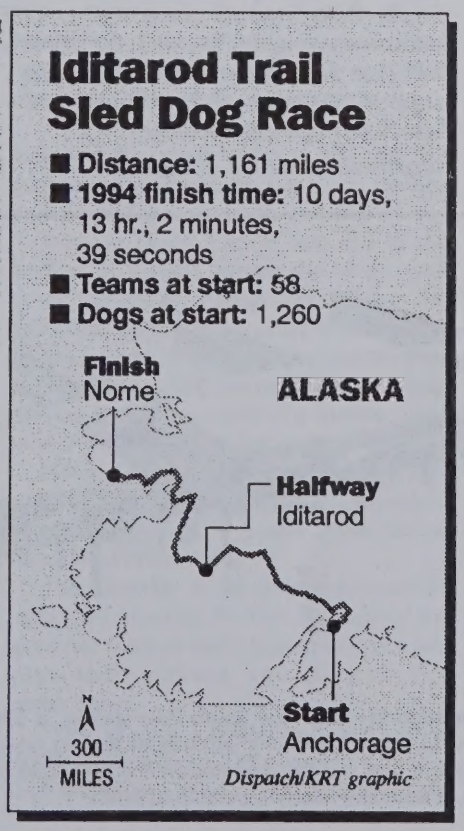
"The race is much faster than it used to be," he said. The 1973 winning time of about two weeks was cut to slightly more than 10-1/2 days last year.

To slow things down, teams this year have been reduced to 16 dogs from 20, and the number of supply stops have been reduced to increase sled weight.

"I think the aim is to have no dogs die on the race, and that's everybody's strongest desire," Hinchcliff said.

"But the situation is that you've got some 1,300 dogs out there for at least two weeks, and if you look at any population of dogs over that period of time, there's going to be problems, even if they're just sitting in a kennel," Hinchcliff sid.

Alaskan sled dogs are a short-haired breed, averaging about 50 pounds. They adapt readily to hard work, quadrupling their caloric intake during the race and running for hours on end. □



The San Telmo Story

Did Spain Discover Antarctica?

by Margaret Orgill, *News Review,* Santiago, Chile, p. 5, Jan. 18-Jan. 20, 1995—Archaeologists have started searching icy waters off Antarctica for the wreck of a Spanish warship which, if discovered, could prove Spanish castaways and not British seal hunters were the first known people to reach the frozen land.

The *San Telmo,* was sailing from Spain to Chile in 1819 when a violent storm swept it hundreds of miles off course as it rounded the treacherous waters off Cape Horn.

Last sighted on Sept. 2, 1819, south of Cape Horn, the ship disappeared with 644 sailors on board; no one knows...where.

Archaeologists searching for the wreck believe the *San Telmo* sank near Livingston Island, part of the South Shetland Islands just off the Antarctic coast.

Clues to the ship's whereabouts come from the first British seal hunters, who reported seeing wood and metal from a ship's anchor and remains of bones on a remote beach on the South Shetlands.

The *San Telmo* sank over a month before British seal hunter *William Smith,* who historical records show to have been the first man on Antarctica, reached it.

ALARMED

So alarmed were the British by fears that the Spanish reached Antarctica first that the head of the British mission in Valparaiso sent a special expedition to claim it for the British Crown, said Stehberg.

Archaeologists from Zaragoza University in Spain, who first began searching for the wreck last January, are using metal detecting devices to search for pieces of the ship lying on the seabed.

"The ship was carrying 74 cannons, each with two tonnes of brass. The signal will be strong," said Stehberg.

The *San Telmo,* the largest wooden warship of its generation, was one of a fleet of four ships sent by the Spanish crown to retake control of Chile.

WEAK SIGNAL

The Zaragoza University expedition, which Stehberg said was the first of its kind in the freezing Antarctic waters, found metal in several areas of the seabed last January. But the signal was too weak to be from the wreck, he said.

Chilean archaeologists, studying relics of sea lion hunters who lived in Antarctica in the last century, are helping the Spaniards by looking in the sheltered coves and beaches of the Shetland Islands for the remains of Spanish castaways, said Stehberg. □

Bold New Plan for Imperiled South Pole Station

By Malcolm W. Browne, *New York Times*, June 28, 1994, p. C1 (Arlington, Va.)—For 37 years the United States has continuously operated a scientific station at the South Pole, which has become a world center for research in astrophysics and astronomy, and for monitoring global environmental changes.

But the station's dilapidated buildings and outmoded, overtaxed equipment may soon begin to hobble polar research. Officials of the National Science Foundation reported at a meeting last week that research at South Pole Station, one of three year-around stations operated by the United States on the Antarctic continent, might have to be curtailed or even ended if funds cannot be found to restore the aging base.

The foundation says it needs $200 million, of which $35 million would be spent in the first year of the eight-year project, to replace the station with a new one better equipped to withstand the brutal polar environment. Even under the best conditions, the bleak, featureless South Polar desert—the coldest and driest place on earth—isolates station crews from the outer world for nine months at a stretch and exposes them to cramped quarters, continuous outside darkness and temperatures that dip below minus-120 degrees Fahrenheit.

[Current station problems include] structural failure in the station's main building, a geodesic dome, as well as the lack of proper garage for vital snow-plowing machinery and a dangerous fuel storage system, which consists of big rubber fuel bladders on the snow that pose a constant threat of an oil spill or fire. Other major problems include an overloaded waste system that has been pumping raw sewage into the icecap for four decades, and conditions that lead to psychological stress and "cabin fever."

A detailed plan developed by the foundation and a team of architects, engineers and other experts calls for completion of a new South Pole Station by the year 2003, if funds permit.

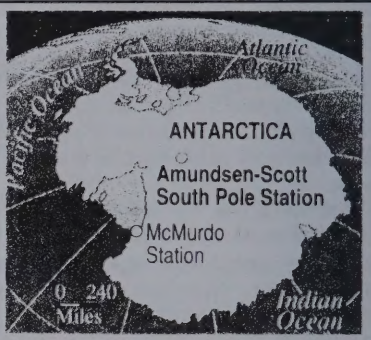
PROBLEM OF DRIFTING SNOW

One of the main problems with the station, which was completed in 1975, is drifting snow. Blown by the winds on the polar plateau, drifting snow builds up against the lee side of structures. Because it never melts, it builds up year after year and may finally crush the adjacent structure. This has begun to happen to the 82-foot-high aluminum dome that has sheltered the cluster of buildings serving as the nerve center of South Pole Station since 1974. The enormous weight of snow on the dome's lee side has deformed the building's support structure and will eventually wreck it, engineers believe.

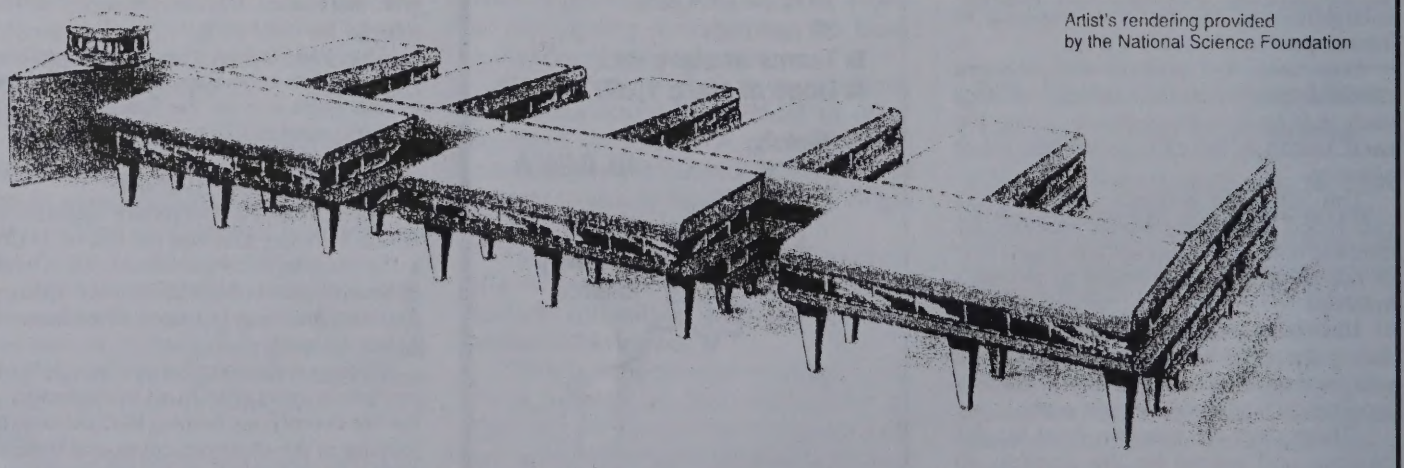
(CONTINUED ON P. 7 AT RIGHT)

Know The South Pole

National Science Foundation, *The Dallas Morning News*—Getting people and supplies to the South Pole is a complicated endeavor. The current plan for new construction is to carry most of the materials by container ship to McMurdo Station on the Antarctic coast and then fly them to the South Pole.



Latitude: 90 degrees south
Altitude: 9,515 feet
Min. recorded temp: -117°F
Max. recorded temp.: 8°F
Average annual temperatures: -57°F
Average wind speed: 12.9 mph
Maximum summer population: 140
Winter population: 27
Distance to McMurdo Station (main U.S. Antarctic base): 839 miles
Water rations: Two two-minute showers and one load of laundry per week.
Amenities: Library, gym, weight room, pool room, bar (bring your own bottle), video collection, souvenir shop, post office and more.
Mealtimes: Breakfast, 6:30 to 8 a.m.; lunch, 11:30 a.m. to 1 p.m.; dinner, 5:30 to 7 p.m.; midnight rations, midnight to 12:30 a.m. □



Artist's rendering provided by the National Science Foundation

THE NEW STATION, National Science Foundation—The new South Pole station, a $200 million project proposed by the National Science Foundation, would be built on stilts to prevent blowing snow from drifting up against the buildings. Planners say the station would hold about as many people as the current one, but the new station is designed to be safer, more efficient and more comfortable. If Congress approves funding for the station, it will take nearly a decade to build.

(CONTINUED FROM P. 6 AT LEFT)

The dome, which for two decades has symbolized America's presence [in Antarctica], would be dismantled and shipped, piece by piece, to the United States for disposal. In its place would rise a string of horseshoe-shaped modular buildings connected by passageways and built on stilts to permit blowing snow to pass through without forming drifts. As the stilts slowly sink into the two-and-a-half-mile-thick icecap, they would be jacked up.

Among the innovations of the new station would be a system to recycle liquid waste. Untreated sewage would no longer be pumped into the ice, where it has been accumulating several hundred feet down for nearly four decades. Water from showers and wash basins in the new station would be recycled for use in flushing toilets, and the effluent from toilets would be treated and possibly used to irrigate an indoor vegetable garden. The National Aeronautics and Space Administration intends to use the South Pole program, called a Controlled Ecological Life Support System, as a test bed for similar systems that might be used in space stations.

Solar heat collectors recently installed on the walls of a new building at the pole have already sharply reduced heating fuel use in the polar summer, and the new station would make even more extensive use of solar power.

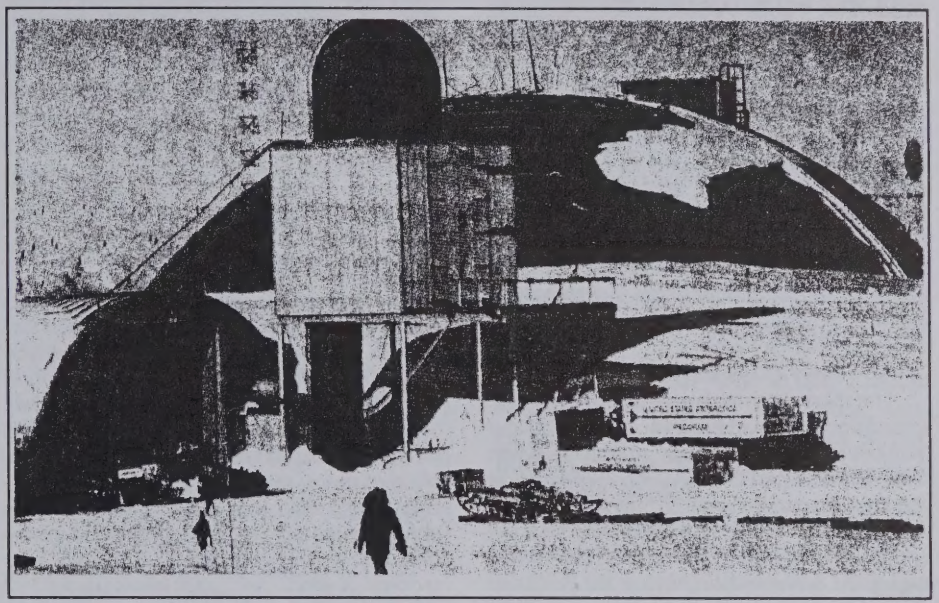
The Office of Polar Programs, acknowledged that Federal money for major science projects was very scarce and the station would have to do the best it could with whatever support it could get. [There is hope for] a special Congressional authorization to renovate the station that would not be included in the foundation's main budget.

[A National Science Foundation rep] said the organization would do its best to keep the station functioning as effectively as possible, at whatever level of financing Congress endorsed, but that they cannot rule out the possibility of having to close the station somewhere down the line.

The only other permanent scientific research station on the Polar Plateau had been Russia's Vostok Station, some 800 miles from the pole. But last year, lack of financial support from Moscow forced Russia to close Vostok Station, at least temporarily. □

FIRE FEARS CHILL HEARTS AT SOUTH POLE

Icy Landscape Leaves Little Water for Volunteers to Pour on Flames



A virtual geodesic tinderbox, the South Pole station is 840 miles from the nearest fire department and is protected by volunteers. The structure covers plywood buildings that lack drywall fire protection.

***The Columbus Dispatch*, p. 7A, AMUNDSEN-SCOTT SOUTH POLE STATION, ANTARCTICA (contributed by Peter Anderson)**—During supper at the South Pole base cafeteria, several diners edged up to the cook and quietly spoke the word that strikes terror in Antarctica: fire.

They didn't want to cause a panic, but they told the cook—who is also the fire marshal—they heard the fire alarm tootling under piped-in soul music.

Marshal Emily Buesser was out of the kitchen in a flash, raising the alarm with other volunteer firefighters among the 140-some people at the polar base.

Firefighters investigated the kitchen, then realized the tootling was no alarm, but a flute playing the background of a Marvin Gaye tune. A huge sigh of relief went all around.

When the nearest fire department is 840 miles away, you can't call in professionals in an emergency. The South Pole station depends on volunteers.

The humidity at the pole is perpetually zero, and many of the buildings under the geodesic dome at the U.S. base are insulated plywood, without any drywall fire protection.

"This place is a tinderbox," said Johnny Smith of Winnsboro, Texas, a polar plumber and firefighter. "You could probably light one of these buildings by touching a match to it."

That's why the polar fire crew practices often, including the day after the kitchen fire scare, when there was a drill: "They had everything there within two minutes; they could have charged hell with a bucket of water," Smith said.

And what if the buildings burned in the polar winter, when the runway is snowed in and there are no flights in or out from January through late October?

"We'd be living in the summer camp out by the runway on k-rations they'd airdrop to us," Smith said.

The fire crews at the South Pole, all support staff hired by Antarctic Support Associates of Englewood, Colo., get a week of intensive training together.

South Pole Base has four fire response teams that increasingly use more equipment. One of them is an emergency medical technician team.

Down at McMurdo Station, 840 miles away, the 1,200 residents are protected by a more conventional professional department that has 41 certified firefighters.

Serious fires have been rare. The old chapel at McMurdo burned in May 1991; the last notable fire was Sept. 30, destroying some equipment in a storage building. □

End of an Era for the Seabees

By JO2 Paul S. Wallace II and JO3 Evelyn T. Bowie, U.S. Naval Support Force, Antarctica, Public Affairs Office, *Antarctic Journal*, March 1994—In October 1993, the U.S. Navy Seabees ended 46 years of involvement in Operation Deep Freeze. Since their inception in 1942, the U.S. Naval Construction Battalions (Seabees) have deployed around the world to support U.S. troops on the front lines, their missions taking them to the South Pacific during World War II, to Korea and Vietnam, and more recently to Panama, Saudi Arabia and Somalia. Although a last frontier rather than a battlefield frontline, Antarctica, too, has been a regular Seabee assignment since 1946.

Early Days In Antarctica

The Navy's involvement in antarctic expeditions began in the 19th century, but the Seabees didn't see "The Ice" until 1946 when they served as part of Operation Highjump, at the time the largest antarctic expedition ever attempted. The 168-person Seabee Detachment of Task Force 68 (Highjump) was organized 1 November 1946 at the Advance Base Depot Construction Center in Port Hueneme, Calif. The initial mission for Highjump was to build an operating base, Little America IV, on the Ross Ice Shelf, approximately 1,223 kilometers from the South Pole. From that mission on, the Seabees demonstrated that thorough training, high morale, and a "can-do," creative spirit coupled with a willingness to challenge the unknown could overcome the many obstacles to building facilities in the world's harshest environment.

Antarctica was not explored again on a large scale until 1955, but the Seabees were major players when Task Force 43—or Operation Deep Freeze—was formed to support the U.S. Antarctic Research Program (USARP).

Construction of First Stations

Mobile Construction Battalion (Special) was established 15 February 1955 in Davisville, Rhode Island. The battalion was "special" because it incorporated occupations not normally found in construction battalions, including aviation and aerology. The 17 officers and 186 enlisted men who formed the battalion went to Antarctica with orders to construct, maintain and operate the stations. More specifically, the battalion's mission was to construct two stations between January and March 1956 and to prepare two more sites for station construction between October 1956 and September 1957. The battalion also scouted out and surveyed locations for future bases in the McMurdo Sound and other coastal locations in the Ross Sea.

The Seabee Detachment evolved from this small construction battalion into what is known today as the Public Works Department of U.S. Naval Support Force, Antarctica.

Naval Air Operating Facility, McMurdo Sound was established during the IGY as a logistics base for deeper exploration into the antarctic continent. Over the next 38 years, McMurdo would be renamed Naval Air Facility McMurdo and finally McMurdo Station. Today, McMurdo Station, situated 1,223 kilometers from the geographic South Pole, still serves as the main staging platform for almost all U.S. scientific efforts on the continent. Although McMurdo Station's appearance has changed drastically, that mission has remained essentially unchanged.

In the early 1960s, the Seabees constructed, operated and maintained the PM-3A nuclear power plant at McMurdo Station. The reactor arrived at the station in December 1961 and was on line by 10 July 1962. By 1966, the plant had broken the record for the longest continuous operation of a military nuclear reactor. Using new operating techniques, navy personnel were able to increase the plant's output over the next few years, and in 1971, it set a new record—it produced 1,600 kilowatts for 172 days without a break. Despite its success, the plant became increasingly expensive to operate, and the Navy agreed to decommission the plant. Between 1973 and 1976, all reactor components, the buildings surrounding the reactor and the soil on which it stood were removed. The site was released for unrestricted use by the Department of Energy in 1979.

Once the basic facilities had been constructed, civilian construction contractors were used more and more for facilities development and maintenance, allowing the Seabees to focus their efforts on the expeditionary aspects of Deep Freeze. Each year, for example, the Seabees built and maintained the annual ice runway and the roads to the ice runway and the ice pier.

Leaders In Cold-Regions Engineering

Since 1957, between wintering detachments and annual deployments, there has been a continuous Seabee presence "On The Ice." These Seabees pioneered and made useable many of the cold-weather construction techniques that are still practiced around the world. According to LCDR Jim Ray, U.S. Naval Support Force, Antarctica's (NSFA) Public Works officer.

The Seabees have made huge contributions to the success of the U.S. Antarctic Program. According to Ray, the examples are to be found everywhere, from McMurdo Station to almost anywhere on the continent. "Most of the existing structures [South Pole Station, fuel storage tanks, Williams Field Facilities, etc.] were built by the Seabees," Ray states. These facilities are still doing the job for which they were designed and built. Other facilities constructed and maintained by Seabees are unique and absolutely critical to current operational and logistic support operations of the U.S. Antarctic Program (USAP). These facilities include the annual sea-ice runway, the floating ice pier, Byrd surface camp and Marble Point Air Facility."

To the Ice Again—Without the Seabees

Headquartered at the U.S. Naval Construction Battalion Center, Port Hueneme, Calif., the U.S. Naval Support force, Antarctica (NSFA) deploys to Antarctica during the austral summer (October through February), providing logistic support and air operations for the USAP. Under the command of Navy Captain Jack Rector, NSFA is the parent component of Operation Deep Freeze. It is augmented by a multiservice force comprised of units from the U.S. Army, Marines, Air force and Coast guard, as well as the Royal New Zealand Air Force and New Zealand Army.

Primary aviation operations for Deep Freeze are provided by Antarctic Development Squadron Six (VXE-6), which is based at Naval Air Station, Point Mugu, Calif. VXE-6 flies ski-equipped LC-130 "Hercules" aircraft to deliver cargo and personnel to various snow-covered locations around Antarctica. VXE-6 also operates twin-engined UH-IN "Huey" helicopters to support and resupply remote field camps near McMurdo.

U.S. Navy Seabees deployed during the annual winter fly-in in August 1993 to survey and construct a runway built on the annual sea ice of McMurdo Sound. This deployment was the last for the 'Bees, whose involvement with Deep Freeze has spanned the entire history of the U.S. Antarctic Program. Their duties were assumed by a civilian contractor with the arrival of the main body in October 1993.

"All things have a beginning and an end," said LCDR Ray. "The Seabees and the USAP have had a mutually beneficial relationship for many years. However, as the Navy downsizes, and the size and complexity of the support infrastructure in Antarctica grows, it is entirely proper for the tasks formerly accomplished by Seabees to be contracted to the private sector. We (the Seabees) need to focus on our core business of Fleet and Marine Corps support."

The officer-in-charge of the Navy wintering detachment will remain as a Civil Engineer Corps officer, and a few Seabee personnel will continue to be part of the wintering group. So the 'Bees will keep an eye on their history, but the era of major Seabee construction and maintenance has ended.

Except for the wintering detachment, the men and women of the Naval Support Force ended their activities on the antarctic continent in February and redeploy to begin a new training, planning and resupply schedule in preparation for the next season—for the first time ever without the Seabees. □

Icebreaker Named for Arctic Hero

***Navy Times*, March 13, 1995, New York (submitted by Billy "Ace" Baker)**—"Hell-roaring" Mike Healy was a fearless sea captain who prowled the arctic, fighting poachers, saving Eskimos and dispensing frontier justice.

He was also a heavy drinker with a savage temper who was court-martialed for abusing his crew and "conduct unbecoming an officer and a gentleman."

But there's nothing ambiguous about Healy's legacy as a hero to 120 students at Virgil I. Grissom Junior High School in the borough of Queens.

They mounted a letter-writing campaign to get the coast Guard to name a ship after Healy, a black who served more than 100 years ago in the Revenue Cutter Service, which became the Coast guard.

Just under the wire for Black History Month, the students got their wish. Top Coast Guard officials announced Feb. 27 at a school assembly they are naming a new polar-class icebreaker after Healy.

"Healy was considered the best skipper in the Arctic," said Robert Browning, the Coast Guard's chief historian. "I think he's a good role model for kids. He wasn't perfect, but he was a strong individual."

Born in 1839 to a slave mother who married her white master, Michael A. Healy was light-skinned and hid his background, historians say.

He achieved fame from 1886 to 1895 as captain of the *Bear* (see "Bear," *Polar Times*, Vol. 2, No.2, p. 3), a cutter that patrolled the arctic. With no other federal agencies around, Healy enforced the law against seal poachers and other bandits.

In his most famous exploit, he ferried a herd of reindeer from Siberia to Alaska to help Eskimos who were dying from starvation and disease.

"He's a good example of an American frontier type," said James O'Toole, a University of Massachusetts-Boston history professor who's writing a book about Healy's family. "Alaska was like the Wild West then, and there was no nonsense aboard Healy's ship."

But in 1895, Healy was court-martialed on charges such as drunkenness and "tyrannous and abusive conduct to inferiors," Coast Guard officials say. He was an old-fashioned disciplinarian "caught between changing community standards," said O'Toole.

The students' letters helped move along the process of naming the ship. School officials aren't bothered by Healy's dubious legacy. They point out that after being suspended from command, Healy was restored to rank in 1902. He retired in 1904 and died a year later.

"Children don't see shades of gray. Either you're a hero or you're a bum," said teacher Samuel Breidner. "Let the man have his glory. Let the kids have their hero." □

Splendours Of Antarctic Draw Crowds

***Christchurch Star*, Jan. 7, 1995 (contributed by Margaret Lanyon)**—Few people get an opportunity to see Antarctica for themselves, so a visit to the International Antarctic Centre [in Christchurch, New Zealand] is the best alternative. The Visitors Centre is a world-class attraction which brings Antarctica to life.

The centre recreates modern-day Antarctica with sound and light shows and shows the environmental importance of the Ice. It portrays the beauty and grandeur of the Southern continent with an emotional impact that leaves few unmoved.

Christchurch is the world's gateway to Antarctica. It has been the link for almost a century. Today the New Zealand, United States and Italian Antarctic programmes work out of the International Antarctic Centre.

The Visitors Centre has its own café, 60 Degrees South Café and Bar, and the Antarctic Shop.

The centre is open every day except Christmas Day and from 9:30 a.m. to 8:30 pm. over the summer. □

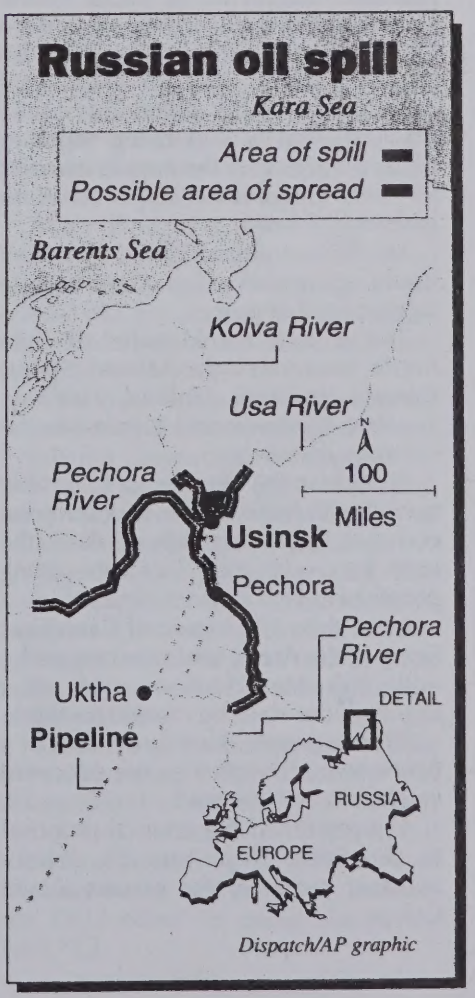
NOTE FROM SECRETARY: *The United States lags behind in development of its own Antarctic Center. However, plans are in progress by the Hero Foundation to establish a similar center in Reedsport, Oregon. Additional centers are under consideration at Ohio State University and at the Empire State Aerosciences Museum in Scotia, N.Y.*

Oil Spill In Arctic Ablaze, Greenpeace Says

***The New York Times*, Nov. 7, 1994, p. A5 (Moscow)**—A new rupture in a pipeline running through the Russian Arctic has spilled 90,000 barrels of burning oil on the fragile tundra, the environmental group Greenpeace said today.

Another recent spill in the Russian Arctic, near the city of Usinsk, was estimated by American experts at two million barrels. Russian officials said it was much smaller.

Greenpeace officials showed photographs and video footage of blazing oil lakes in the tundra. They said the new spill was about 40 miles north of Usinsk. □



Arctic Council Plan Pushed

Would Link 8 Nations in Joint Effort

by Stefanie Krauss and Kristin E. Hussey, *The Washington Times*, Jan. 29, 1995 (multiple contributions)—In geographic terms the Arctic is quite literally "the end of the Earth."

But Mary May Simon, Canada's ambassador for the eight-nation Arctic region, says the people of the area face a number of challenges that require greater international attention.

Squeezed by the onrush of modern industrial civilization and a totally alien culture, she said the indigenous Arctic residents suffer from high rates of unemployment, alcoholism, suicide, a housing shortage and environmental pollution.

"The Arctic is composed of many different peoples that have a certain vision...that goes well beyond just environmental protection," said Ms. Simon, an Inuit, or Eskimo, who is the first member of that minority group in Canada to hold an ambassadorial position.

Ms Simon and the Canadian Government are pushing for the creation of an intergovernmental association, to be called the Arctic Council, that would bring together nations that border the area in an effort to develop common approaches to various problems.

Ms. Simon visited Washington two weeks ago as part of her efforts to raise support for that group.

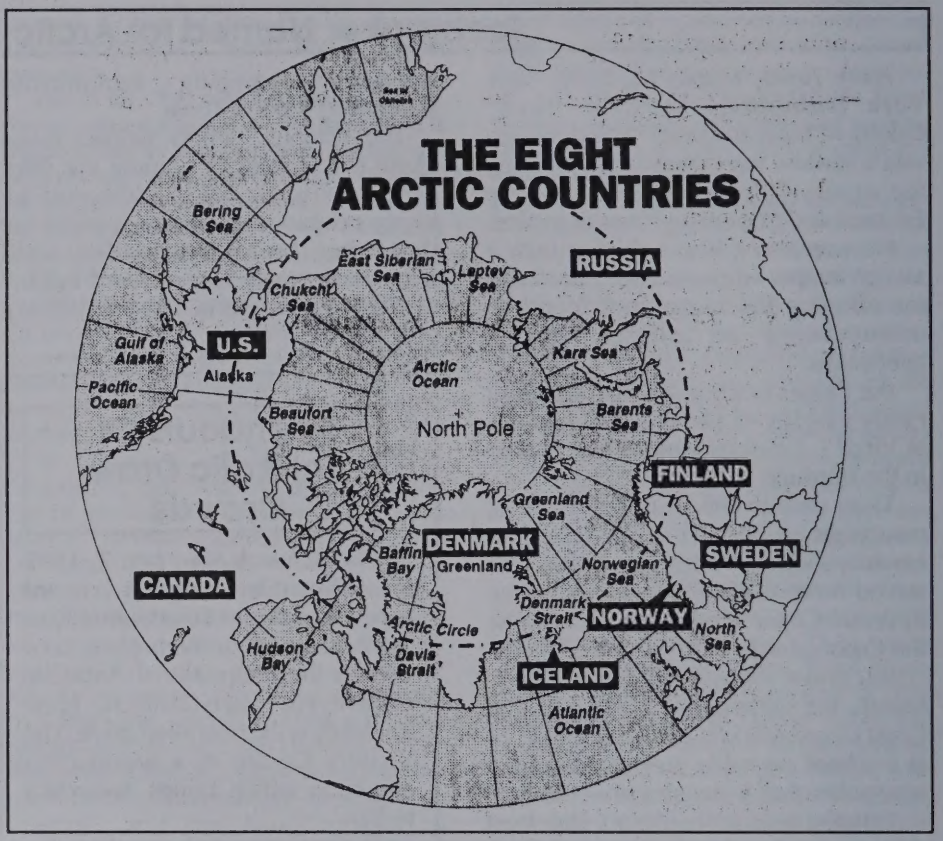
The council would unite all eight Arctic countries—the United States, Canada, Iceland, Finland, Norway, Sweden, Denmark and Russia—in the common endeavor.

"People in the North want to be able to work with Arctic nations to develop the economic base that is really needed in the north for wealth and jobs for the young people of today," said Ms. Simon.

More than 50 percent of Canadians living in the Arctic territories are under age 25. Ms. Simon said new opportunities must be created for them.

"Young people don't have much of a future, even though they are educated academically," she said.

She presented the council proposal to the State Department's deputy assistant secretary for oceans David Colson.



Mr. Colson said there is already an eight-country group, the Arctic Environmental Protection Strategy (AEPS) that meets to consider Arctic issues. He said that while the United States "agrees that we need to strengthen international Arctic institutions," it favored merging aspects of the AEPS "with ideas that Canada has for the council."

But one Canadian official said the AEPS and the council would have to remain distinct institutions in order to provide "a broader point of view." AEPS focuses almost entirely on environmental issues.

"If you get environmental people sitting around, it's inevitable that you get a unidimensional approach," the official said. "Environmentally, there are problems to be cleaned up, but we have to go beyond that. If you don't, you destroy the whole livelihood of everyone up there."

Canada foresees an umbrella group that would meet several times each year.

The United States and Canada agree the key to improving conditions in the far north is sustainable development, to be implemented in a way that respects the environment and the people's history.

But that kind of development can only be financed if "you drop something else" from the budget, Mr. Colson said.

Ms. Simon argued that resources that could fund development "are taken out of the North and...[do not] filter back...so then you're exploiting the resources, taking them out and none of it is going back."

Penguin Chicks Starve As Food Source Declines

***Pensacola News Journal*, Feb. 6, 1995, SYDNEY, AUSTRALIA (contributed by Billy "Ace" Baker)**—Penguin chicks are starving to death near one of Australia's Antarctic bases in a foodless "desert" patch of ocean, scientists said today.

About 1,800 Adelie penguin chicks have died in one colony near Mawson Base, said Steve Nicol, a biologist with Australia's Antarctic Division in Hobart.

It appears the penguins can't find enough krill the small shrimp-like crustaceans that are their dietary staple, he said. □

Journey Through Byrd's Papers Ending

by David Lore, science reporter, *The Columbus Dispatch* (contributed by Peter Anderson)—Without benefit of dogs, sleds or even snowshoes, Ohio State University archivists are completing a 10-year trek through the papers of Adm. Richard E. Byrd, the explorer who opened Antarctica for scientific research.

The organization and analysis of more than a million documents, photographs and films relating to Byrd's career should be finished this month. The material includes family-related items and extends from 1882 to 1980, but it focuses on Byrd's five Antarctic expeditions between 1928 and 1956.

In addition, geologists at OSU's Byrd Polar Research Center are hoping to construct an atrium exhibit of photographs and artifacts—like sleds, ice picks and anchors—at Scott Hall on West Campus.

The collection is one of the largest at Ohio State, said university archivist Raimund E. Goerler.

"I was interested when this started," Goerler said. "Now I'm immersed."

Byrd, who died in 1957 at age 68, first made headlines in 1926 when, as a young Navy officer, he achieved the first flight to the North Pole.

The rest of Byrd's career was devoted to Antarctica. He led expeditions for exploration and research, lobbied potential sponsors to finance his work and wrote and spoke about the frozen continent.

Lynn Lay, left, and Raimund E. Goerler hold the wheel from Byrd's ship, used in the 1928-1930 expedition.

"More than any other individual, Richard E. Byrd was responsible for the continuing scientific and governmental presence of the United States in Antarctica," states an assessment of the collection prepared in July by Goerler and OSU historian Richard Hite.

Also key to the project were Kenneth Jezek and Lynn Lay, director and librarian, respectively, at the polar center, and Robert Matuozzi, a graduate assistant writing a master's thesis on Byrd.,

Jezek said the center hopes to raise about $150,000 in private contributions to build the Scott Hall atrium to showcase polar artifacts.

The Byrd papers came to Ohio State because Peter Anderson, a historian then working at the polar center, persuaded the Byrd family in 1985 to turn over mountains of the admiral's records that had been stored in a New England barn since Byrd's death in 1957. Another barnful was found and trucked to OSU in 1990.

OSU paid about $175,000 for the Byrd collection, said Goerler, plus another $70,000 for the papers and possessions of one of Byrd's contemporaries, the Australian polar explorer Sir Hubert Wilkins.

The U.S. Department of Education has contributed $120,000 toward archiving costs on the collections, he said.

"The (Byrd) collection at this point is in more parts than ancient Gaul," Goerler said. But that will change next year when its consolidated for the university archives and book depository now under construction on Kenny Road, just sough of Ackerman Road.

Goerler calls the Byrd collection "the primary source on the exploration of Antarctica in the 20th century," even though official records of the government-sponsored "High Jump" and "Deep Freeze" expeditions after World War II are at the National Archives in Washington.

There are some disappointing gaps, Goerler said. There's nothing new in the papers, for example, about Byrd's 1926 flight to the North Pole, which just beat out a rival flight by the great Norse explorer, Roald Amundsen and Ohioan Lincoln Ellsworth.

Admiral Richard E. Byrd, 1926

In addition, Byrd's personal diaries are still missing, and may have been destroyed, Goerler said.

Still, Goerler says the documents contain valuable tidbits for polar historians. For example, they say:

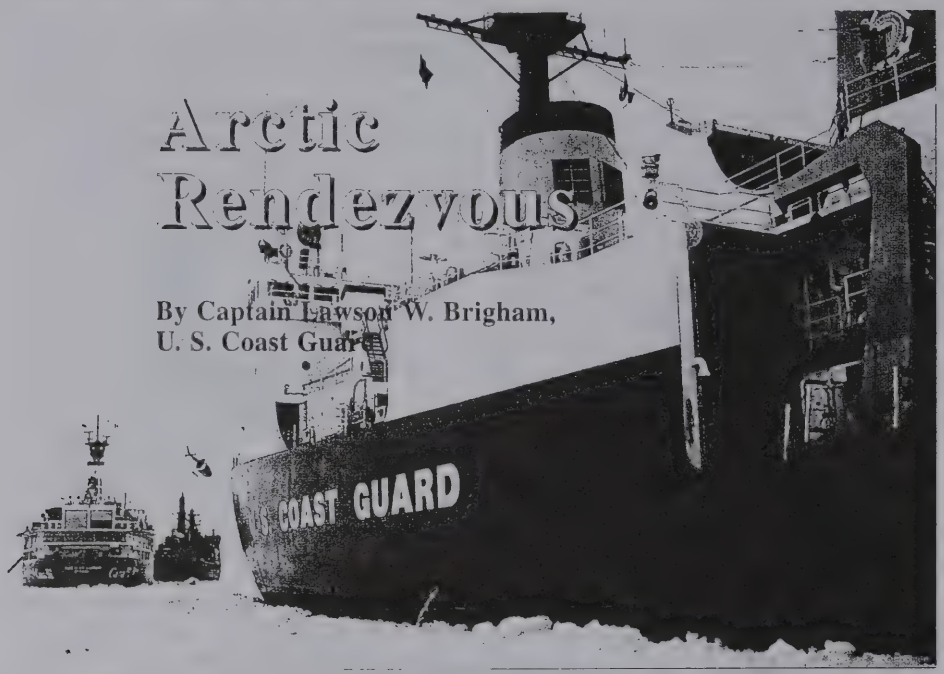
The evidence is that Byrd planned before leaving the United States to winter alone in an isolated advance base only several hundred miles from the South Pole during the 1933-1935 expedition. The risky venture—which almost killed him—was criticized as a publicity stunt, but Byrd maintained he lacked transport to carry supplies out to the base for additional men.

Many thought that President Harry Truman canceled a planned follow-up to the "High Jump" expedition of 1946-1947 because of "political strife" with Byrd's powerful brother, U.S. Sen. Harry Byrd (D-Va.).

Adm. Byrd in the post-war years felt it essential that the United States establish permanent outposts in Antarctica during the Cold War. Later, however, he was a firm backer of US.-Soviet cooperation on the ice.

The collection, Goerler said, also includes letters between Byrd and his late wife, Marie. Under OSU's agreement with the Byrd family, those will remain confidential until the deaths of their children.

Byrd's daughter, Bolling Byrd Clarke of Media, Pa., said the family was disappointed when plans fell through for a Byrd museum in Boston. But Clarke, a member of an OSU archival advisory board, said the family believes the OSU effort "is going along very well." □



Arctic Rendezvous

by Captain Lawson W. Brigham, USCG, Naval Institute Proceedings, Jan. 1995 (contributed by Billy "Ace" Baker)—On 23 August 1994—one day after becoming the first Canadian and U.S. surface ships to reach the North Pole from the Alaskan coast—the Canadian Coast Guard icebreaker *Louis S. St.-Laurent* and the U.S. Coast Guard icebreaker *Polar Sea* (WAGB-11) joined the Russian nuclear icebreaker *Yamal* in a historic gathering. More than 550 people met on the Arctic ice, only 20 nautical miles from the North Pole.

On 20 August, the *Yamal*, commanded by Captain Andrei Smirnof, reached the Pole with an international group of 65 gifted children on board. A Russian film crew was documenting the children's adventure and broadcasting the events throughout Russia and Europe. When the Canadian and U.S. icebreakers arrived three days later, Captain Smirnof invited the scientific expedition's leader, Dr. Knut Aagard, and the commanding officers of both ships for a visit to his filming location. The officers agreed upon a rendezvous, and the ships hove to in the ice with the *Yamal*.

The officers and crew of the Yamal began the extraordinary event with a barbecue on the ice, and the crew members of all three ships joined together for an international softball game. The commanding officers decreed "open house" for the three icebreakers, offering tours and warm receptions on board each ship.

Just a few years ago, this unexpected and impromptu August 1994 convocation of Russian, Canadian and U.S. polar icebreakers at the top of the world might not have been possible. Professional and personal exchanges of this type will enhance closer cooperation among all polar nations as we face greater challenges in the use and protection of the Arctic environment. **(See companion story in vol. 2, No. 4 of *The Polar Times*.)** □

Northern Traditions

***The Northern Forum*, July-August 1994 (contributed by Alaska Gov. Wally Hickel)**—The first settlers of Chukotka arrived thousands of years before the 1648 Russian expedition of Semyon Dezhnev. These were the ancestors of the present-day indigenous peoples who represent approximately 10 percent of the current population of Chukotka. The largest of the 24 indigenous groups of Chukotka are the Chukchi, who live throughout the region, and the Eskimos who are related to the Eskimos of Alaska. Other indigenous peoples include the Chuvantsi, Ukagir, Evens, Koryak and Kireki.

The Chukchi, for whom the Chukotka Peninsula was named, traditionally lived either inland or on the seashore. The seashore dwellers were marine hunters who lived in settlements along the coast. Inland dwellers, the Reindeer Chukchi, led a nomadic lifestyle, herding reindeer in the mountains or forest pastures and along the coastal tundra. The Reindeer Chukchi traded their products for whale oil and seal skin with the maritime Chukchi and Eskimos.

Yupik-speaking Eskimos may have occupied the entire coast of the Chukotka Peninsula. They traditionally hunted seals, whales and walrus in open boats covered with walrus hide. The whale played a large role in Eskimo beliefs, and religious rites were performed to celebrate the whaling season.

Today, respect for nature and all its creatures is still alive in indigenous lifestyles, dances and rites. However, some aspects of this lifestyle have changed greatly. By the 1950s, almost all reindeer herds became state-owned. Many coastal communities were combined with reindeer collectives and the marine-based lifestyle was lost to the Eskimos and the Maritime Chukchi. □

Gala Return For Ice Flights

***The Press*, Jan. 3, 1995, SYDNEY (contributed by Margaret Lanyon)**—A feeling of being overwhelmed by Antarctica's icy vast spaces was how one person described the inaugural Qantas scenic flight over Antarctica on New Year's Eve.

As if aerial views from the jet traveling 3000m above the southern wilderness were not enough, there was champagne, a jazz band, Antarctic experts and the atmosphere of an elite invitation-only party to welcome in the new year. More than 350 passengers aboard the first of six flights from Sydney and Melbourne witnessed what had been for the past 15 years an unattainable dream—a glimpse of the South Pole.

In 1979, a New Zealand flight to Antarctica ended in tragedy when all 257 passengers and crew died after their DC10 crashed on Mount Erebus, ending all flights over the area until now. □

French Abandon Antarctic Airstrip

***Antarctic Society of Australia* newsletter #38, Sept. 1994, p. 18-20 (contributed by Peter Barretta)**—France will close its controversial airstrip on Adelie Land, Antarctica, without having landed a single plane there.

Environment Minister Michel Barnier said the decision had been taken because of difficulties in making durable repairs to the airstrip, badly damaged by ice in the winter of 1993 and by a storm last January.

The airstrip, criticised by environmentalists for disturbing bird rich colonies including emperor penguins, cost $A28 million and would have cost another $1.4m to repair.

Three islands were levelled to build the strip and joined up with rubble. Work started in 1982 to a chorus of ecologists' protests, but was suspended while effects on the environment were studied. Work resumed in 1987 and the first plane was to have landed there in January last year.

The aim was to provide an air supply link with the French scientific base of Dumont D'Urville, which depended on ship-borne supplies from Hobart, nearly a week's voyage away. The base is cut off by ice for nearly nine months a year.

Barnier also said France intended creating protected sites on Geology Point in its Antarctic territory to safeguard exceptional bird colonies. And a study would be done within a year on the feasibility of gradually moving the aging installations of Dumont d'Urville to a new site on an undamaged part of the airstrip.

A French expert said the strip's builders ran into problems with the effects of freeze thaw on the terrain, which was inherently unstable. He said it was "technically feasible" to repair the strip, but that the Madrid Protocol of October 1991 banned removal of rocks or minerals from the area. "We would have had to transport between 10 and 15 tonnes of landfill from Australia," he said.

Barnier also announced France was applying its ban on whaling in its exclusive economic zone of 1,750,000 km^2 around the Kerguelen and Crozet Archipelagos and the islands of Saint Paul and Amsterdam. He added that a new scientific base, known as "Dome C," to be built with Italy inside the Antarctic continent, would do "climatic and environmental research on a world scale." (*The Mercury*, Sept. 23, 1994) □

Navy's Antarctic Helicopters Saves Taxpayers Millions

By Cmdr. Steve Gardner, ANTARCTICA (NWS) (contributed by Billy "Ace" Baker)—Recently in Antarctica two helicopters form the Antarctic Development Squadron Six (VXE-6) completed another first. The aircraft flew more than 300 miles from their deployed base at McMurdo Station, Antarctica, to a remote portion of the Polar Plateau where they recovered the payload of a long duration balloon (LDB) with scientific equipment worth more than $4 million.

The LDB was carrying the Japanese/American Cosmic-Ray Emulsion-Chamber Experiment (JACEE), which is organized and run by a collaborative group of 35 senior scientists at 11 institutions from the United States, Japan and Poland. The experiment is headed by Dr. R. Jeffrey Wilkes, University of Washington, and is fully funded and sponsored by NASA. The balloon, launched on Dec. 22 from McMurdo Station, made two full revolutions of Antarctica at altitudes as high as 131,000 feet (more than 21 miles).

The purpose of the project is to carry a cosmic ray detector above most of the earth's atmosphere for 10 to 20 days, a flight duration much longer than routine balloon flights in the United States. Balloon flight operations are being performed by the NASA-operated National Scientific Balloon Facility, in collaboration with the U.S. National Science Foundation (NSF), which operates all Antarctic research programs. The amount of data collected in this single operation could increase by 50 percent the information collected in 11 flights performed during the last 14 years.

The balloon and payload were brought down by radio control from a ski-equipped LC-130. At that time the LC-130 was unable to land and recover the 6,000-pound payload due to ground fog in the landing area. When the weather improved, a second ski-equipped LC-130 was sent into the area. When they attempted to land they found the hard snow surface unsafe due to high, hard mounds of snow called sasturgi. A Twin Otter attempted to land in the same area two days later with the same results.

The helicopter "Ice Pirates" of VXE-6 had already determined that recovering the bounty would be of benefit to science and would save taxpayers a significant amount of money, so they decided to go for it. The squadron would have to go over twice the normal range to recover this gear, and the aircraft would need a refueling stop en route. Working with the Italian Antarctic Program they were able to use fuel that was already in place on the Antarctic Plateau. The flight of the helicopters began with a brief at 6:30 a.m, and the temperature at a "balmy" 20 degrees Fahrenheit and clear skies. After almost four hours of flying across the near featureless terrain of the Polar Plateau, with a fuel stop where the crews hand-pumped fuel from 55-gallon drums, they arrived at the site around noon.

The LDB payload, weighing almost three tons, had to be disassembled before being transported back to McMurdo. The helicopters' crews, along with Steven Peterzen, from the National Scientific Balloon Facility of NASA, began this monumental task. After four hours of work they had broken everything down. Before the work was done, everyone was suffering from a very mild form of "mountain sickness" or hypoxia, caused from working so hard at such a high altitude and in such cold weather. □

U.S. Base at South Pole Friendlier to Tourists

by Peter James Spielmann, *The Washington Times*, Feb. 12, 1995, p. A8, AMUNDSEN-SCOTT SOUTH POLE STATION, ANTARCTICA (contributed by Peter Barretta and J.S. Ong)—After years of giving the cold shoulder to intrepid skiers, hikers or snowmobilers who reach the South Pole, the United States is now showing a little hospitality.

"For the true adventurers who do something phenomenal, we are allowed to help them out a little bit," said John Parland, station manager at the pole.

Traditionally, the U.S. National Science Foundation and its support crew limited assistance to a hot cup of coffee and quick tour of the site. Bad publicity over that grudging attitude prompted a policy review this season.

The foundation is still worried that warmer hospitality policy will encourage more adventurers, who sometimes get into trouble and require U.S. taxpayer funded rescues, and may interrupt scientific experiments.

"The problem is when they get into trouble, they turn to us for help," Tucker Scully, the director of the State Department's office of Ocean Affairs, said in a telephone interview from Washington.

Yet, when three Norwegian skiers arrived at the pole Dec. 28, 1994, they volunteered to work at Amundsen-Scott base and got full meals in exchange.

"The station people feel a whole lot better being able to welcome them" said Erick Chiang, the NSF officer who managed all three U.S. Antarctic bases.

This exchange of work for full base privileges was a marked turnabout in the U.S. program's treatment of such adventurers.

Dick Smith, an Australian who flew around the world over both poles in 1988, complained that he got only a cup of coffee on arrival at the south Pole and a few hours' sleep on a couch, but no radar or weather reports and no fuel to continue his journey. Smith went on to Russian's Vostok station, which gave him some fuel.

That was typical of the tepid welcome all drop-ins received then.

The United States can't bar people from the South Pole; no one owns Antarctica, and anyone can come and go as they please. But the bases and stations are the property of the countries that run them, and access to their facilities can be restricted.

The National Science Foundation especially discourages adventurers from entering the "clean air zone" near the pole where atmospheric research is done. Airplane and snowmobile exhaust can skew the results of air sampling.

Amundsen-Scott base still officially refuses to provide weather information or radar reports to incoming tourist flights, which arrive about six times each southern summer.

They are not allowed to refuel from U.S. supplies, so the only company running flights to the pole—Adventure Network International—has its own fuel dump near the runway.

High-rolling polar tourists pay about $25,000 for the round-trip flight from Punta Arenas, Chile, to the pole for a two-hour stopover and back. They get a cup of coffee and some cookies, a quick look around the inside of the geodesic dome, and then they're sent on their way.

A less frequent problem, but more worrisome, is adventurers who may not be prepared for brutal Antarctic conditions.

"An awful lot of time and heroic effort has been spent to help or who get themselves into trouble, and at considerable expense," Mr. Scully said.

The outstanding example of that happened Dec. 27, 1993, when Norwegian Army Captain Jostein Helgestad plunged 130 feet to his death in a crevice during an expedition.

His team was hoping to recover the tent, Norwegian flag and sledge that Roald Amundsen left at the pole Dec. 16, 1911, when his party became the first to reach it.

"The Norwegians still haven't paid us back" for the rescue, Mr. Chiang said. The expedition was billed $130,000, and the Norwegian government agreed to back up the costs. Mr. Chiang said he is confident the bill will be paid eventually. □

Antarctic Activities of the Czech Republic

by Steve Pendleton, *Linn's Stamp News*, Sept. 19, 1994 (contributed by Peter Barretta)—Unlike most Antarctic bases, Vaclav Vojtech (the base name) has been privately supported through 1994. This has been done through the financial contributions of a number of conservation and youth organizations.

Because of the limited amount of funds available, the size of the base has been small, usually two or three people per year.

The base is located at Maxwell Bay, Nelson Island, in the South Shetlands. This island forms the western boundary of the bay near which is located the largest concentration of bases in the Antarctic.

Because there is no post office at the Czech base, mail is generally canceled at Marsh Station, a Chilean base.

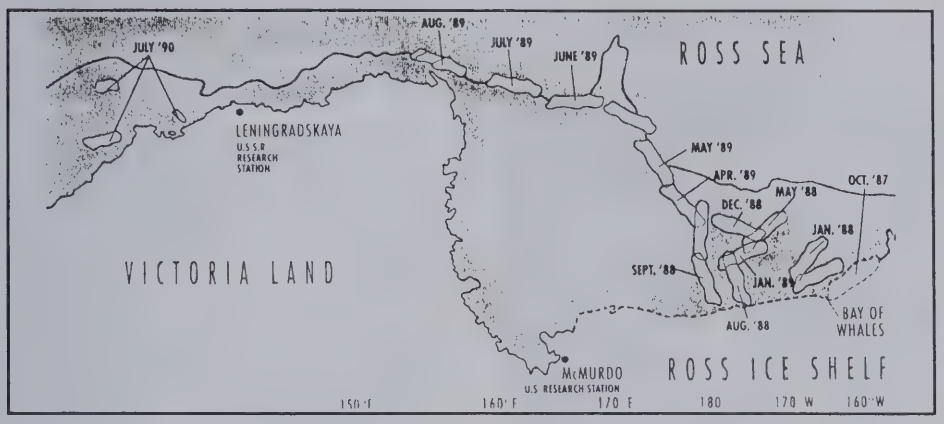
The two buildings that make up the base proper were constructed in January 1988. The base has been in use since then.

The name Vaclav Vojtech immortalizes a Czech member of Adm. Richard Byrd's first Antarctic expedition of 1929. Although Vojtech was a geography teacher back home, on the Byrd expedition he was forced to work in the engine room. Unfortunately, he passed away a few years after the return of the expedition. □

Rising Water Forces Vanda Demolition

The Press, Dec. 28, 1994, CHRISTCHURCH (contributed by Margaret Lanyon)—Vanda Station, New Zealand's base for scientific study of Antarctica's dry valleys, is being demolished. Lake Vanda had been rising about one metre a year for the past decade and was threatening to flood the buildings, said the new Zealand Antarctic Programme's information manager, Tim Higham.

Navy and army personnel were helping members of the programme pull down the station, which was built in 1967-1968, he said. Materials and soil were being removed from the site to prevent contamination of the lake's clear waters. A much smaller facility with relocatable research and cooking huts was being built on higher ground on the opposite side of the lake. □



Huge Iceberg 96 by 22 Miles

***Popular Mechanics*, Feb. 1991**—A team of scientists has successfully tracked a giant iceberg from its calving, or birth, in the Ross Sea to its breakup off the coast of Antarctica. The movements of the iceberg provided detailed information about ocean currents and may help climatologists learn how much ice is reaching the oceans and if sea level will rise or fall.

The team, made up of scientists from the Department of Conservation in New Zealand, Columbia University's Lamont-Doherty Geological Observatory and the Navy/National Oceanic and Atmospheric Administration Joint Ice Center in Washington, D.C., tracked the 96-by-22-mile iceberg—roughly the size of Long Island—for three years using both weather satellites and a radio transmitter that was dropped on the ice from a plane.

The iceberg, designated B-9 by scientists, broke off the Ross Ice Shelf in October 1987, eliminating the Bay of Whales and forcing scientists to redraw maps of the coastline. B-9 was unique because of its large size (scientists estimated it contained enough ice to give each person on Earth two glasses of water a day for 1,977 years) and distinctive features. The shape "enabled us not only to follow it by position, but to follow it by orientation" says Stan Jacobs, a senior staff associate at Lamont-Doherty. "We could see how it rotated with time."

By watching how and where B-9 moved, Jacobs and his colleagues were able to observe the speed and direction of ocean currents over an extended period. Previously, water movements in and around the Ross Sea had to be inferred from temperature and salinity measurements.

Calving events, like the one that produced the B-9 iceberg may also be important in determining how much ice reaches the sea. Scientists have theorized that the ice shelves extending over the water dam the flow of ice from glaciers on the continent. If the ice shelves shrink or disappear, the ice that is now covering the land on Antarctica might move more rapidly into the oceans, causing sea level to rise all over the world. □

Japan To Sell Meat From 'Research' Whales

***The New York Times*, Nov. 12, 1994, p. 7, TOKYO, JAPAN (contributed by Peter Barretta Jr.)**—Japan will soon begin selling meat from minke whales caught in the northwestern Pacific despite strong pressure from foreign governments and environmental groups to halt its hunting of whales, the Kyodo news agency reported today.

The agency quoted the Institute of Cetacean Research, which conducts research for the government, as saying that 65 tons of meat would be sold from 21 whales caught for research purposes.

The International Whaling Commission imposed a worldwide moratorium on commercial whaling in 1985, but it allowed limited catches of minkes for research. Japan says research in the Antarctic has shown that stocks have recovered enough to sustain commercial catches. □

Speedy Glacier Halts

***The New York Times*, p. C6, Dec. 20, 1994, (contributed by Peter Barretta)**—One of the world's fastest moving glaciers has stopped its persistent push toward the Pacific Ocean after more than a year at speeds that sometimes averaged 300 feet a day.

The Bering Glacier along Alaska's coast moved more than six miles south toward the Pacific from October 1993 to July 1994, reversing 25 years of northward retreat.

"It's the most aggressive surge that's occurred since 1950," said Dennis Trabant, a glacier scientist with the United States Geological Survey in Fairbanks, Alaska. "What has happened at Bering is world-class speed. Very few people will live to see the next one."

The glacier has surged at least five times this century, pushed forward by water pressure building underneath the ice. The glacier is 125 miles long and covers 2,300 square miles, making it larger than the state of Rhode Island. It is up to a half-mile thick in places.

"It's now about five miles from the ocean," said Bruce Molnia, deputy chief of the Geological Survey office of International Geology Survey office in Reston, Va. "It's remarkable."

The glacier sits along the south coast of Alaska, halfway between Juneau and Anchorage. It has shrunk 40 square miles this century and has thinned by as much as 600 feet, Mr. Molnia said.

As it advanced, the glacier bulldozed rocks, soil and vegetation, overran lakes and islands and threw off icebergs into a lake along its leading edge.

Mr. Trabant and Mr. Molnia said surging was one way the Antarctic ice sheet could become unstable. Some speculate that if the ice sheet surged and began breaking up, that could raise sea levels.

Mr. Molnia said a surge occurred when water pressure and volume built up below the glacial ice. That overpowers the friction that usually keeps the glacier in place.

"A carpet of water separates the bottom of the ice from an earth bed and it almost hydroplanes," he said.

In September, water trapped below the glacier burst through, and the glacier came to a stop. □

Four Telescopes in Neutrino Hunt

by Malcolm W. Browne, *The New York Times*, Feb. 28, 1995, p. C10 (submitted by Peter Barretta)—Neutrino astronomy was given a push in 1987 when a supernova in a galaxy only one-quarter of a million light years away from Earth flared into view—the closest supernova in 400 years. At almost the same time the supernova appeared over the Southern Hemisphere, a burst of neutrinos was detected in both Japan and the United States, confirming predictions that the supernova explosions of massive stars must produce vast swarms of these elusive particles, some of which could reach the Earth.

The construction of high-energy neutrino observatories gained financial backing and four neutrino telescopes are currently under development. Three use hugh volumes of water as their detectors. One is at the bottom of Lake Baikal in Siberia, another (called Nestor) is 12,500 feet deep in the Mediterranean Sea off the coast of Greece and a third (called Dumand) is nearly 16,000 feet deep in Hawaiian waters. The fourth neutrino telescope, the south Pole's AMANDA array, uses ice as its detector.

In each case, cables fitted with optical fiber and electrical connections linking series of light sensors are placed at different depths. When a flash of light passes several of the sensors in an array, computers can time the passage of the flash and calculate the direction from which it came.

The neutrino telescope at the South Pole looks straight down, searching for neutrinos from distant space that hit in the vicinity of the North Pole, pierce almost the entire earth and emerge at the South Pole, only to collide with an atom in the polar ice.

Hopes have been high for using neutrino telescopes to pinpoint cosmic sources of neutrinos—"hot spots" in the sky that could be matched with known celestial objects. But neutrino astronomy has hit serious snags.

In Hawaii, the first string of Dumand's oceanic detectors laid down by a cable ship last year sprang a leak.

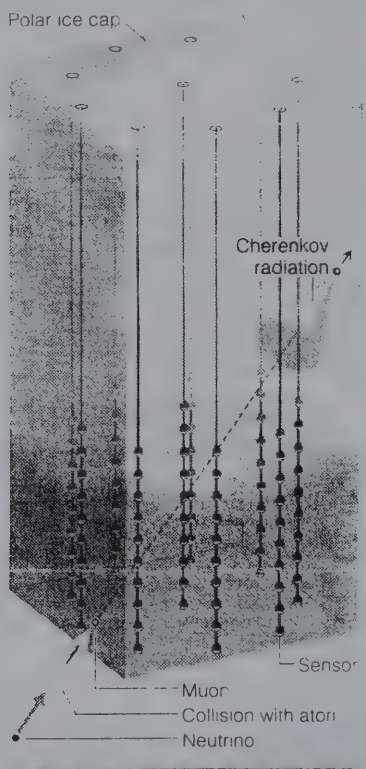
The Nestor project in Greece is not finished, and at Lake Baikal, Russian scientists are so short of every kind of necessity that many of the crates sent to them labeled as "scientific equipment" actually contain food for the needy researchers. ☐

Science News From the Ice

Cutting-Edge Telescope Seeks Neutrinos at South Pole

***Antarctic Journal*, March 1994**—The world's largest neutrino detector is now operating at the South Pole, collecting observations at the cutting edge of a new field of astronomy. Four strings of detectors for the antarctic muon and neutrino detector array (AMANDA) have been embedded a kilometer deep in the polar ice sheet; six more will be installed during the 1994-1995 research season to finish the array.

"Neutrinos are messenger particles of high-energy physics, which can tell us what's happening inside the astronomical objects where they formed, such as in pulsars or active galactic nuclei," explained University of Wisconsin physicist Robert Morse. The most numerous particles in the universe, neutrinos travel where light cannot. Every so often, a neutrino passes completely through the Earth and up through Antarctica's ice sheet. As it moves through the ice sheet, the neutrino collides with an atom and produces a particle called a muon. The resulting blue flashes of Cherenkov light, visible through the transparent ice, should hit AMANDA's detectors just as the wave from a passing boat rocks a raft of buoys. "No one can yet claim to have detected a neutrino-induced muon," Morse said, and before results can be expected from the new antarctic array, the detectors must undergo intense testing.



The New York Times, Illustration by Al Granberg

To build AMANDA's 60-meter-diameter circular array, drillers used jets of hot water to bore holes in the ice, then they lowered detector strings into the 60-centimeter-diameter holes. The strings, each studded with 20 photomultiplier tubes, became encased when the ice in the drill holes refroze.

Scientists from the University of California at Irvine and Berkeley and from the Universities of Uppsala and Stockholm are also participating in AMANDA, which is supported by NSF and several Swedish funding agencies. ☐

***MORE ON AMANDA, Antarctic Journal*, March 1994**—Near Amundsen-Scott South Pole Station, drillers from the University of Alaska's Polar Ice Coring Office use a hot-water drill to prepare holes 60 centimeters in diameter by 1,100 meters deep for AMANDA—the antarctic muon and neutrino detector array. Into each hole, researchers will lower detector strings studded with photomultiplier tubes to depths between 900 and 1,100 meters. The tubes, which detect the Cherenkov radiation produced when neutrinos collide with atoms, are attached to cables that carry signals from the detectors up the hole to the AMANDA-experiment building on the surface. During the 1993-1994 austral summer, four strings of detectors were installed; during the 1994-1995 season, science teams installed six more. ☐

From Silver, Toxic Lining In Ancient Atmosphere

The Associated Press, *The New York Times*, Sept. 27, WASHINGTON (contributed by Peter Barretta)—Silver refining by ancient Greeks and Romans covered the entire Northern Hemisphere in toxic lead, researchers have found.

This fallout 2,500 years ago rivaled modern-day gasoline as a top lead pollutant, French scientists report in the current issue of the journal *Science*.

"This occurrence marks the oldest large-scale hemispheric pollution ever reported, long before the onset of the Industrial Revolution," concluded Dr. Claude Boutron of Domaine University in France.

Dr. Clair Patterson of the California Institute of Technology, first theorized 20 years ago that vast areas of Europe were contaminated by lead shed as a byproduct of silver refining by the ancient Greeks and Romans. Swedish researchers confirmed his calculations in March, using lead in lake sediments to pinpoint the earliest pollution between 500 B.C. and A.D. 300.

Dr. Boutron took those findings a little further, analyzing lead preserved deep in Greenland's ice. Like the Swedes, Dr. Boutron found that lead suddenly increased hundreds of times above natural levels 2,500 years ago and stayed that high for the next 800 years, corresponding to the Greco-Roman silver production.

The finding so far north shows that swirling air masses spread the lead from smelters in Spain, Greece and central Europe not just regionally but across the entire hemisphere, he concluded. About 400 tons of lead were deposited on Greenland, his study found. That is equal to 15 percent of the fallout from leaded gasoline, one of history's worst lead pollutants, Dr. Boutron said.

"We hadn't recognized how extensive it could be," Dr. Patterson said. "The average person contains 1,000 times more lead in [their] body than did [their] prehistoric ancestors. The Arctic record shows when this buildup began and how it proceeded." ☐

STARS COME OUT AT THE SOUTH POLE

Wooden COBRA structure (above) stands next to South Pole observatory (left) that houses SPIREX (inset).

WILLIAMS BAY, WIS.—The night lasts six months. The air lies calm and bone-dry. The plateau rises to 10,000-ft. altitude. Sounds like an astronomer's paradise? It is—if you can stand half a year in an Antarctic winter. After all, the South Pole makes Alaska seem like Hawaii. Nevertheless, the Center for Astronomical Research in Antarctica is assembling several telescopes at the Pole, with the ultimate goal of setting up a world-class observatory.

Now getting a shakedown at Boston University, the Antarctic Submillimeter Telescope and Remote Observatory (AST/RO) is a 5.25-ft. telescope designed to survey the interstellar medium. AST/RO will operate next to the South Pole Infrared Explorer (SPIREX), already installed. The third facility is COBRA, short for Cosmic Background Radiation Anisotropy. This sensor has already delivered high-resolution measurements of microwaves left over from the Big Bang. ☐

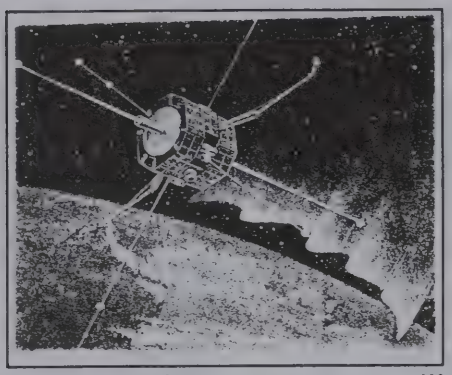
Nuclear Contamination Threatens North Pole

***The Washington Times*, p. A12, Jan. 24, 1995, MOSCOW (contributed by Peter Barretta)**—Nuclear contamination from a Russian nuclear complex in the southern Urals could ultimately spread to the North Pole, according to President Boris Yeltsin's former environment adviser.

Tobol Yablokov, a member of Russia's Security Council in charge of environmental matters, told Japan's Kyodo News Service last week:

"In one to two decades, water contaminated with radiation [from the Mayak nuclear plant in Chelyabinsk 65] will reach the North Pole through the Ob River. Then the region will be as heavily contaminated as Chernobyl."

He said nuclear contamination at Chelyabinsk 65, a secret Cold War city exposed to radiation from the Mayak plant for more than four decades, continues. ☐



Only 46 inches across, FAST will explore the dynamics of the aurora borealis.

NASA'S Northern Exposure

POKER FLAT, AK., June 1994—Astronauts passing over Alaska at the right time describe the experience as "flying through a wall of light." But the aurora borealis remains as mysterious as it is beautiful. In particular, scientists still don't understand why the northern lights stick around for so long.

To find out, the Fast Auroral Snapshot Explorer (FAST) will soon zip through the polar upper atmosphere. Scheduled for launch this September atop a Pegasus XL, the little satellite will click off measurements at an unprecedented speed—8 million times per second. Its magnetometers and other sensors will detect plasma waves and particles. And if FAST downloads something especially striking, researchers will quickly send up a sounding rocket to complement its readings.

As FAST soaks up the details, another satellite called Polar will deliver the big picture, orbiting high overhead and surveying the stream of solar particles that triggers the aurora. □

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ANTARCTICA OFFERS NASA CHANCE FOR MARTIAN DRY RUN

***The Washington Times*, Feb. 26, 1995, TAYLOR VALLEY, ANTARCTICA (submitted by Peter Barretta)**—Antarctica's dry valleys are the coldest, most brutal deserts on earth, yet even here, at the limits of survivability, is life.

Conditions in the Taylor Valley and the other dry valleys are so relentlessly harsh that they are more like Mars than any other place on earth, which is why NASA is co-funding research into the living rocks here.

The clue that led the National Aeronautics and Space Administration to use the dry valleys east of the U.S. McMurdo Station as a model for possible life on Mars was found more than 20 years ago in a dead man's rock sample bag.

By 1973, Viking spacecraft had been designed to look for traces of life in the soil near their Martian landing sites. They were launched two years later.

But Imre Friedmann, a biologist and now director of the Polar Desert Research Center at Florida State University in Tallahassee, thought that was the wrong approach.

If Mars had life, he argued, it would not be in soil that was baked or frozen to sterility. A more likely form of life would be microorganisms that retreated into porous rocks.

"Life is so harsh that microorganisms go either inside the rocks or under them" he said. "They are living at the very edge of life."

Mr. Friedmann had found such organisms—bacteria and lichens called cryptoendoliths—first in the Negev Desert of his native Israel, then high in the Alps and in deserts in Mongolia and the American Southwest.

He felt that if similar organisms could be found in Antarctica's dry valleys, they would be the sort of life NASA should be looking for on Mars, an equally hostile environment.

Scientists think conditions on the two planets were similar 3.5 billion to 3.8 billion years ago; then Mars became colder, drier and apparently sterile. If there was Martian life, it probably never evolved beyond microorganisms, then died out.

"We can use Antarctica to reconstruct the processes before the extinction of life on Mars," Mr. Friedmann said.

He couldn't persuade the U.S. science bureaucracy to finance a trip to Antarctica to look for cryptoendoliths; he was "laughed out," he recalled. But a friend, Wolf Vishniac, was heading there in 1973 to study soil samples.

Mr. Friedmann asked Mr. Vishniac, a microbiologist at the University of Rochester who was part of the Viking planning team, to look for rocks like those he had found sheltering microorganisms in the Negev.

Tragedy ensued.

Mr. Vishniac died in a mountain-climbing accident in Antarctica. Mr. Friedmann grieved for his friend and was crushed by the loss of his only chance to prove his theory about the possibility of life in the dry valleys.

"A few months later I got a letter from his widow," Helen, also a microbiologist, he said. She told him she had found "a rock bag with your name on it."

Mr. Friedmann took the samples and found the rock-swelling bacteria inside them, a discovery that persuaded the National Science Foundation to support his Antarctic research beginning in 1974.

Now working with Chris McKay of NASA's Ames Research Center, Mr. Friedmann's crew has found about 30 species of bacteria maintaining a fragile toehold on life in the dry valleys.

The Antarctic cryptoendoliths eke out an existence in temperatures that edge just over freezing in summer, but drop to 50 degrees below zero in winter.

They are fragile, but tenacious. Mr. Friedmann's sample colonies are estimated to be 10,000 years old—biology on the time scale of geology.

NASA is interested in the fact that these microorganisms cause physical changes in their rocks. If such cryptoendoliths ever lived on Mars, a properly designed spacecraft should be able to find evidence: their fossils and the chemical changes they wrought in the rocks.

NASA plans to send the Mars Pathfinder to the planet, aiming for a 1997 landing. The Pathfinder will look for promising samples of soil and rock.

"Very basic questions could be answered with just a few molecules," Mr. Friedmann said, such as whether life evolved the same way on both planets and what DNA or other genetic codes may have been on Mars. □

Expert Fears Loss Of Climate Data

By Michael Lafferty, science reporter, The Columbus Dispatch, June 17, 1994 (contributed by Peter Anderson)—Three days after Ohio State University glacier expert Lonnie G. Thompson returned from the Arctic, the White House called wanting to know where he'd been.

"Franz Josef Land," Thompson told the harried staff member trying to round him up for a White House breakfast today with Vice President Al Gore.

"It's kind of strange how those things work," said Thompson, who was attending the breakfast along with White House science adviser John Gibbon and several others.

Thompson and graduate student Keith Henderson, from OSU's Byrd Polar Research Center, returned last week after spending three weeks in helicopters around the Russian island chain in the Arctic ocean, studying glaciers with British and Russian colleagues.

Thompson said Gore's breakfast meeting stemmed from an article by a Dutch researcher in Science magazine, which indicated glaciers in every region of the Earth have retreated significantly over the last century.

Thompson is one of the foremost experts on glaciers and has been studying them as possible indicators of past climate He said he will take Gore—who has a special interest in environmental issues—some disturbing news from his trip.

Even above the Arctic Circle, one of the four glaciers he studied had been melting, he said. The problem for Thompson and other glaciologists is that their glacial library of climate data is disappearing.

"There should be an effort to core these archives and get them into a freezer," Thompson said. "We don't know what will happen with global temperatures five to 10 years from now."

Thompson said he will ask the vice president's support for a crash program to send drilling teams to six of the largest and most critical tropical glaciers not yet sampled. "Six million dollars would be enough," Thompson said.

Based on the amount the glaciers have retreated, average global air temperatures have increased by about 1.2 degrees Fahrenheit, said the article in Science.

Not all glaciers are retreating. Some, in Greenland for example, are still growing. Also, while average temperatures may be higher, scientists lack data for a good long-term perspective. Perhaps the current warmer period, for example, is just a blip in an otherwise colder period.

Because the suspected global warming corresponds to dramatic increases in atmospheric carbon dioxide from the burning of fossil fuels, however, many researchers see a connection.

Thompson said he believes some of this perspective can be provided by mountain glaciers in middle latitudes. The glaciers keep an annual record of atmospheric conditions, and by studying the proportion of the specific forms of oxygen to hydrogen trapped in the ice, average temperatures in the past can be determined.

Analyses of cores from glaciers in China and Peru indicate the average temperatures over the glaciers today are the highest in the last 12,000 years.

"Every tropical glacier for which we have data is retreating, and where we have time series data they're retreating at an increasing rate," Thompson said. □

Glacial Bowl Not A Welcoming Place

by Leslie Dreyfous, AP Writer, OVER SUKKERTOPPEN, GREENLAND (source, contributor unknown)—"It's something, isn't it?" said Lt. Col. Graham Pritchard, who had flown this route many times before.

No one answered.

A dozen coastal mountains rise steeply from the Labrador Sea like egg white beaten to snowy peaks. It is not a welcoming place, this glacial bowl of a country rimmed by unforgiving ice and tundra.

The blue-black fjord known in the native Eskimo language as Kangerlussuaq points inland toward Sondrestrom Air Base, an unlikely destination for a bunch of Air National Guardsmen and women from upstate New York.

But then, the 109th Airlift Group is an unusual unit with a rare peacetime mission. It's fleet of C-130 transport planes with skis—four of 11 such craft in the world—are a lifeline for scores of scientists working at the north and south poles.

As they do in Antarctica during the opposite polar summer, the big-bellied transports of the 109th carry thousands of tons of food, research equipment and personnel to the Greenland Ice Sheet Project 2.

It's a job the Guard unit, based in Scotia, N.Y., learned well through years of serving Arctic radar sites, which the military automated in the 1980s.

After 50 years, the U.S. Air Force withdraws this fall, and Sondrestrom will revert to Greenland for use as a civilian airport. The 109th will either arrange to stay on or move north to Thule Air Base.

"We've got a history here, a special mission that virtually no one else in the world can perform," said Pritchard, 47, one of five pilots supported by 30 navigators, engineers, loadmasters and maintenance crew.

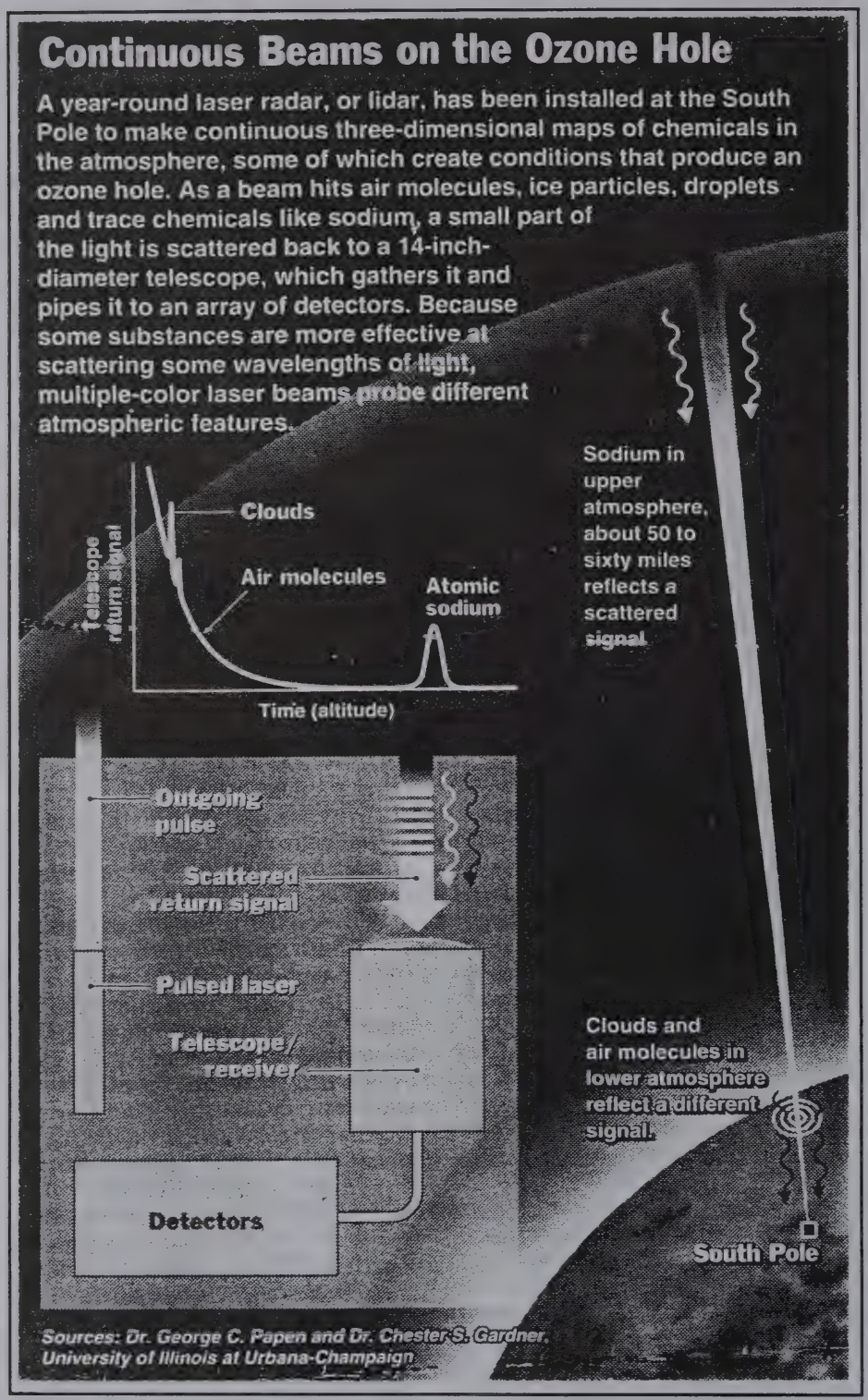
One member of the Guard unit is a lawyer, another a farmer. One owns a rug-cleaning business, another a construction company. Some are VietNam veterans, others were barely into their 20s when called up for the Gulf War.

Their trademarks as a team are ingenuity and flexibility, both essential to landing at remote sites where the visibility is often near zero and the temperature 40 below.

Reliability is critical to researchers at the project site 400 miles inside the Arctic Circle and 11,000 feet up the summit of the icecap. Without support, they could not survive.

"The guys at the 109th are especially popular out here because they're not rigid about doing everything by the book" said Baxter Burton, who oversees logistics through the Polar Ice Coring Office at the University of Alaska, Fairbanks. "They just find a way—and know when to laugh."

The missions are run on a sort of bartering system that benefits everyone. The 109th ferries cargo pallets and scientists out to the site and camp personnel keep two skiways groomed for the training runs needed to keep pilots certified and flight crews sharp. □



Maryland Students Interact With Antarctica

by Dan Beyers, Washington Post, December, 16, 1994 (contributed by Peter Barretta)—Without ever reaching for his overcoat, 12-year-old Jordan Kramer journeyed to the end of the Earth yesterday to ask a scientist in Antarctica to help solve one of nature's most enduring riddles: Do penguins have knees?

Jordan's filed trip was an electronic one. He and more than a dozen of his seventh-grade classmates in Silver Spring, Md., talked via satellite with two scientists at McMurdo Station, the main U.S. installation on the remote continent, and the southernmost port in the world.

The televised exchange was part of an ambitious experiment by Maryland Public Television to link schools to specialists around the world. Yesterday's session was transmitted live across the country via public television.

The students sat transfixed as scientists bundled in red parkas cheerily answered their questions while seals slept or penguins frolicked behind them. At several points, the cameras panned the mostly barren landscape and the researchers described the near-freezing temperatures as a typical balmy summer day in Antarctica. The southern hemisphere goes through summer while it's winter up north, and vice versa.

The hour-long program, which included questions from classes in Baltimore and Hawaii, offered a glimpse of technology's power to take student to the remote reaches of the globe without leaving the cozy confines of their classrooms.

A public television crew brought video equipment to a classroom at Col. E. Brooke Lee Middle School so that students and scientists could see one another. NASA ground stations and a National Oceanographic and Atmospheric Administration satellite helped relay the signals.

When it comes to studying Antarctica, the ability to remain in the classroom proved attractive for some of the Lee students, who learned that the aptly named "cold continent" is an isolated and often forbidding place. □

Record Low Ozone Levels Observed In Antarctica

***The Antarctica Project*, Washington, D.C.**—The World Meteorological Organization reported that the rapid decline of the Antarctic ozone layer continued throughout the last week of September 1994, surpassing all previous records registered for that month.

Over an area measuring more than three quarters of Antarctica and the adjacent seas, ozone levels were recorded at less than 150 ozone units. Within the "hole" there is a huge area with less than 120 ozone units, representing a deficiency of 65 percent. Satellite observations suggest that the ozone hole is deeper than ever this year. In previous years, scientists theorized that volcanic aerosols from the 1991 eruption of Mount Pinatubo were largely to blame for continuing ozone loss, and the problem would diminish as the effects of the eruption dissipated.,

These new findings indicate that ozone depletion is still occurring at an alarming rate. Despite the agreement by nations to phase out the production of ozone-depleting chemicals, the chloroflurocarbons already in the atmosphere are continuing to destroy the ozone layer. Scientists now expect ozone levels to continue falling well into the next century. □

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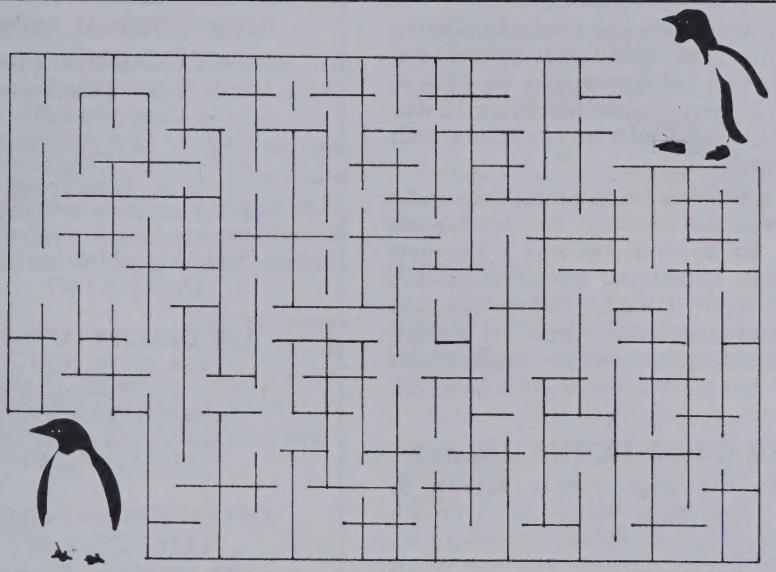


23 MILLION KIDS GO TO THE NORTH POLE

By Laura Billings, *USA Weekend*, Feb. 24-26, 1995 (multiple submissions)—In his travels across Earth's loneliest terrain, polar explorer Will Steger often would end long days of dog-sledding by the warm glow of a tent lantern, committing to his journal all he'd observed about the frozen world. "What was missing was interaction," says the 50-year-old Minnesotan. "I used to think, 'Boy, I wish I could share with people what I'm learning.'"

Starting next weekend, Steger will have plenty of opportunity to share on his latest adventure, the International Arctic Project, a 2,000-mile trek designed to call attention to pollution at the North Pole, the end point for more than a tenth of Earth's freshwater runoff. Transboundary polar pollution has reached such heights on the food chain that some fat-storing polar bears can be classified as toxic waste, researchers say.

The target audience for such dire warnings will be not scientists or public officials, but kids—potentially 23 million worldwide—who will follow the project via satellite and computers linked to the Internet and the Scholastic Network. (Steger will use a battery-powered laptop computer.) A former junior high science teacher, Steger considers the project a trickle-up approach to environmental education. "I have this theory that you go from the bottom up," he says. "One of the best ways for adults to learn is when their kids keep bugging them."

Though adventure is his motivation ("keeps the blood goin'"), the project's educational program is what drives Steger, particularly since so many polar firsts already have been notched. Educational outreach gives adventure "a new purpose. If [you're] plugged into the Internet, it gives people a chance to explore through you."

Steger discovered that when he first took his dog sled on the infobahn, in 1990. The response from kids who followed him across Antarctica was beyond expectations, and Steger thinks he knows why. "The pitfall of education without interaction is it gives us a very limited perspective. We see our classrooms and neighborhoods and think that's all that exists. We become oblivious to cause and effect."

Training recently in Canada, members of the International Arctic Project tested the Internet connection with students who shared everything from jokes to theories about why sunspots played havoc with the explorers' radios. Steger says he hopes the computer link will inspire the kids to explore more online possibilities. "Our real success stories are those kids that get so involved in our project that they want to wander off in new directions, never to be heard from again."

That the world of exploring might never hear from Steger again is something he has hinted at over the years. People who know him, though, no longer fall for it. "He's told us at every trip that this is his last," says Paul Schurke, a co-leader of Steger's 1986 North Pole trek and one of his northern Minnesota neighbors. "But Will has a passion for places north and places cold."

When he pulls into a frozen camp after a long, cold day on the trail, Steger admits, he sometimes fantasizes about pulling into the driveway after a long day at the office. But such thoughts are fleeting. "last year I was about to turn 50 and I was shoveling snow around my tent. It was one of those moments when you get a flash of your life, and it made me think 'I like what I'm doing.'" □

Notable animals

Gray wolf
Canus lupus

Habitat: Forests, mountains and tundra of Alaska and Canada; portions of northern Minnesota, Michigan and Wisconsin; small areas of Montana, Wyoming and Idaho; remote regions of Europe and Asia.

Habitat in North America

■ *Current habitat*
Original habitat

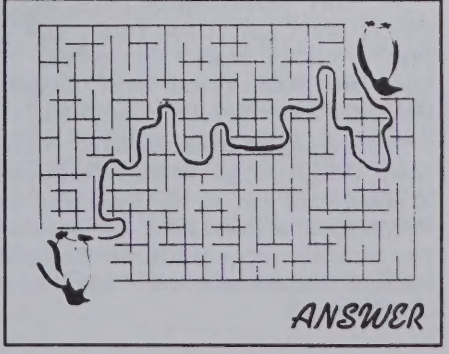
Size: 45 to 176 pounds; 40 to 63 inches long.

Facts: The gray wolf is the largest of the species. Its fur is gray with brownish patches. Fur on the back and tail tends to be darker. In some populations, there are all white and all black specimens. The underfur is dense, enabling the animals to sleep on snow or ice in freezing temperatures. The gray wolf is often a nocturnal hunter, running in packs to bring down prey such as deer and moose. Only the dominant animals of the pack mate, but all members help feed and protect the litters of four to seven pups.

Status: Wolves are protected in the lower 48 states, and some have returned to areas from which they were exterminated. Alaskan wolves are in no immediate danger.

Source: *Endangered Species of the World, The Return of the Wolf*

Tom Mattix/*Dispatch*



OBITUARIES

KAYE EVERETT

"LATE OSU EXPERT WORKED TO PREVENT RUSSIAN DISASTER" By David Lore, *Columbus Dispatch*, Nov. 13, 1994—The news out of the Russian Arctic last month would have appalled **Kaye Everett**: the collapse of a dike near Usinsk released an estimated 84 million gallons of oil, a river of crude across the delicate permafrost.

Everett, an Ohio State University agronomist who died last month, had worked for decades in Siberia and Alaska to prevent just such devastation.

The nation's leading expert on organic tundra soils, Everett did pioneer research in the early 1970s on the ecology of the tundra and potential impact from development.

His work helped make the case for the extraordinary Arctic engineering involved in construction of the Prudhoe Bay oil field and Trans-Alaska pipeline. A decade later, his soil studies gave fact to the debate over drilling in Alaska's Arctic National Wildlife Range.

Mrs. Everett said her husband was pleased with the steps taken in Alaska to avoid permanent damage to the permafrost. Oil wells, buildings and roads were built atop thick gravel pads to prevent melting, pipelines were insulated and elevated and balloon tires were installed on vehicles to prevent permanent ruts from being cut in the spongy soil.

Six years ago, Everett expanded his work to Siberia, using what he had learned in Alaska to help the Russians protect—and in many case restore vegetation to damaged areas across the vast Russian Arctic.

"He never considered what he was doing of much importance," said his wife. "He felt what other people were doing was much more important."

On Oct. 21...Mr. Everett died suddenly from pancreatic cancer at the age of 60. □

FATHER MARY

Fr. Guy Mary-Rousseliere, OMI, Ph.D., by Capt. Don Taub, USCG (Ret.)—"Father Mary" Rousseliere of Pond Inlet, Baffin Island, NWT, Canada, died April 23, 1994, at the age of 80.

A living legend in his own time, "Ataata Mary" (his Eskimo name) met a fiery death at about 1:30 a.m. in his quarters of the R.C. Mission at Pond Inlet, Baffin Island, the world's most northern Catholic mission, established in 1929. He died of smoke asphyxiation during his response to the fire.

He had devoted 55 years of his life to Canada's north and 38 years at Pond Inlet. His funeral celebration was on May 4, 1994, in the Anglican Church, and he was buried at Pond Inlet in accordance with his wishes.

In addition to being a missionary and a doctor of anthropology, his contributions went far beyond. He was a foremost historian, ethnologist, anthropologist and archeologist in Canada's Eastern Arctic. His multiple contributions included articles, books, photographs and films largely related to the Inuit and the history of the Arctic. □

PAUL-EMILE VICTOR ,Explorer

***The Washington Post*, March 9, 1995—Paul-Emile Victor**, 87, a French polar explorer, died March 7 (1995) on his South Pacific island. He had heart ailments.

Mr. Victor made his reputation in snow-blown Greenland in the 1930s. Later, he explored Antarctica, where he became the guarantor of France's presence. In 1947, he created the French Polar Expeditions, which he headed until 1976,.

An ardent ecologist, in 1974 he created the Group Paul-Emile Victor for the Defense of Man and His Environment. He wrote dozens of books, including *The Poles and Their Secrets* and *Planet Antarctica*. He had been living since 1977 on his private island, Motu-Tane, near Bora-Bora in French Polynesia. □

BARRY BISHOP

"Beware of Soft Shoulders—Barry Chapman Bishop is Dead at Age 62," by Paul Dalrymple, *Antarctican Society*, Nov. 1994—As old Norman goes to his destiny climbing Mt. Vaughan, a very famous mountaineer who had some Antarctic blood in his veins met his destiny in a single-car accident on the soft shoulders of a road near Pocatello, Idaho, on 24 September. Barry served in the Antarctic Projects Office of the U.S. Air Force from 1955 through 1958, working as a scientific adviser to the late Admiral Richard E. Byrd. He also was the official U.S. observer on the Argentine Antarctic Expedition in 1956-57. □

ANNOUNCEMENTS

INTERNATIONAL ARCTIC SCIENCE COMMITTEE (IASC)
Arctic Planning Conference
5-9 December 1995
Hanover, New Hampshire
APPLY: IASC Conference
Polar Research Board
National Academy of Sciences
2101 Constitution Ave., NW
Washington, DC 20418
(202) 334-1477

USS GLACIER (AGB-4)
Sept. 21-24, 1995
Holiday Inn, Peabody, Mass.
Contact: James A. Tinch
901 Chestnut St., Livingston, TN 38570
(615) 823-7467

OPERATION HIGH JUMP TASK FORCE 68
50th Anniversary Reunion
Labor Day Weekend, Sept. 1996.
Ohio State University
Contact: Don. Leavitt
Reunion Coordinator
2109 Grand Ave., Morton, PA 19070
Or call or fax 610-461-1623
Provide name, address, zip code, telephone number and ship or unit.

WIND CLASS ICEBREAKERS
Crew members from "Wind Class" icebreakers who have made trips to either the Arctic or Antarctic regions.
Contact: Bob Johnson
241 Christian Ave.
Stony Brook, NY 11790
(516) 689-6181

U. S. S. BURTON ISLAND AGB-1

If you are planning a reunion, let us know as soon as possible so we can publish the details in a timely fashion. Better still, we will publish "inquiries of interest" in a reunion for members of polar expeditions. Then, after the celebration, we will carry an article with the details of the get-together.

LETTERS TO THE EDITOR

Dear Editor:

Quite by accident, I learned that *Itaska* was escorted by a Canadian icebreaker, the *Sir John Franklin*.

I certainly do not belittle William Simon's success, but I do believe that it detracts from the achievements of those who have done it the hard way for it to be implied that Itaska also did it the hard way.

Skip Voorhees
Medina, Wash.

Reply: Skip, we were not advised that the Sir John Franklin helped out. Now everyone in The American Polar Society knows! Thanks! Della

Dear Editor:

As a long-time member of The American Polar Society I am very pleased to see *The Polar Times* in circulation again. The first three issues are very good indeed. I hope you continue to improve and enlarge it.

John Millard
Toronto, Ontario, Canada

Dear Editor:

[*The Polar Times*] is such a useful contribution to history that I hope you will always try to print the source and date of cuttings. Sometimes it is not there, and I guess that is because you were sent the cutting without its source and date. The bit by Walter Sullivan, for instance. Everyone knows he writes for the *New York Times*, but people will want to reference the original date of publication.

Charles Swithenbank
Cambridge, England

Editor's Reply: Good idea. We are also going to give credit to our contributors (except multiple sources). Without your contributions we wouldn't be here.

Dear Editor:

I enjoyed the last issue very much. Keep up the good work. One small error. The author of the *Sea of the Bear* was LCDR M.A. Ransom USCG (in lieu of USN).

B. Howard, CDR, USCG Ret.

Secretary's Reply: Mea Culpa. Sorry! I know better. ***Brian Shoemaker, Capt., USN (Ret.)***

Dear Editor:

There are enough polar OAEs in the Northern California chapter of The Explorers Club to put on a polar exploration program (on some weekend) that APS could jointly "sponsor" somewhere here in the west.

Folger Athearn Jr.
Oakland, Calif.

Secretary's Reply: Great idea, Folger! Let's make it happen. Brian

Dear Editor:

I salute the officers and crew of *USCGC Polar Sea* for their successful completion of an extremely demanding mission.

Nonetheless, to ensure fairness to the too-often unheralded men of the Navy's submarine force, I feel compelled to point out factual errors in your otherwise first-rate writeup.

On Aug. 3, 1958, the nuclear submarine *Nautilus* (SSN-571) became the first ship in history to reach the North Pole. Since then, more than 40 submarines have surfaced at the Pole.

The article also states that *Polar Sea* was "the first U.S. vessel to circumnavigate the North American continent." This, too, is incorrect. At least five submarines in recent years have accomplished that feat.

B.B. Scott, Capt., USN
Officer-in-Charge
Arctic Submarine Laboratory
San Diego, Calif.

Dear Editor:

I beg to differ with your last issue, page 3, on "Icebreakers...." *USNS Eltanin* sailed to 78°32.6'S in the Bay of Whales on 1 Feb 1968, 2.7 NM farther south than the *USCGC Polar Sea*.

Capt. Richard Thornton, Master
USNS Eltanin

Dear Editor:

Christine Tierney writes (in Vol. 2, No. 4, "Whalers Worry as Protection Expands"), "Hunters and environmentalists agree that the IWC has become a protection agency instead of fulfilling its original mandate to regulate whaling," and attributes this profoundly erroneous sentiment equally to spokespersons for Greenpeace and the government of Norway.

The "original mandate" of the IWC included protection of whales as well as the regulation of whaling. That is precisely why the 1946 Convention under which it operates included specific powers to establish "sanctuaries." At the 1994 meeting at which the Southern Ocean sanctuary was approved, the IWC also endorsed new rules for calculating commercial catch quotas *outside* sanctuaries. The remaining question is: Where and When will those rules be implemented and under what conditions of control and enforcement? The debate continues, as far as the northern hemisphere, including especially Arctic waters, is concerned; the long battle to bring industrial whaling under control has not ended. Mr. Blokhus, speaking for Norway, is merely making propaganda to justify that country's resumption of "outlaw whaling" in defiance of international decisions; Dr. Curtis, for Greenpeace, is simply thinking wishfully.

Ms. Tierney's last paragraphs are incorrect. Not "a few members," but only one country—Japan—at the end of vigorous negotiations, opposed the sanctuary decision, *including* the minke whale.

Now the rest of us are moving on as far as the Antarctic is concerned. Greenpeace International, World Wildlife Fund International and IFAS are jointly sponsoring, in cooperation with the government of Ireland (one of the strongest supporters of the original sanctuary proposal by France), an international workshop to outline a programme of non-lethal research on whales in the sanctuary. This will be held in Ireland at the beginning of May, just before the 1995 meetings of the IWC which this year will be in Dublin.

Podere Il Falco
Italy

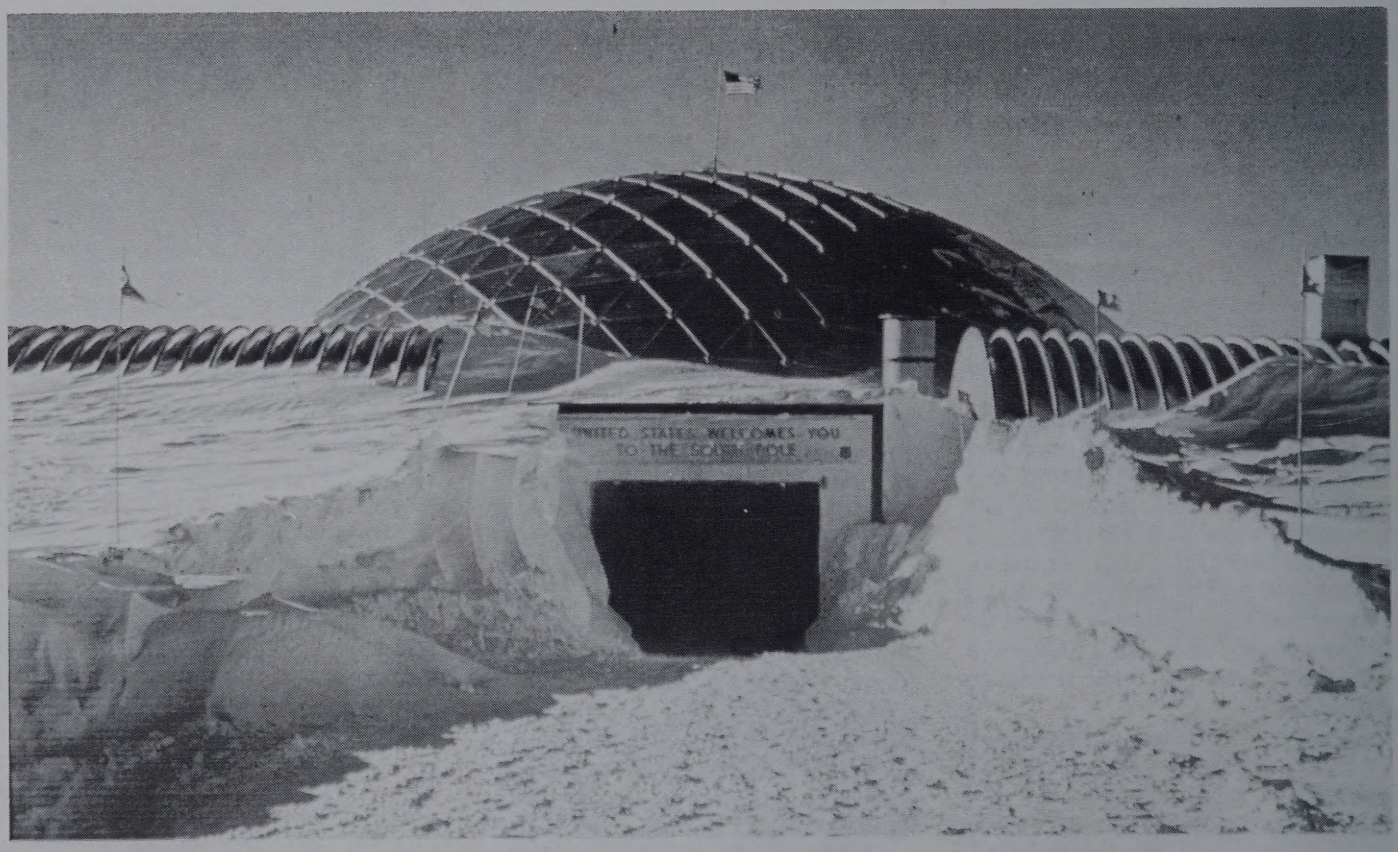
Dear Editor:

I am especially pleased the APS is steady on course once again. Sure missed *The Polar Times* those many months.

The Polar Times is really a fine publication. While I've never been on either "end," I was bitten by the Antarctic bug as a child in Portland, Ore. My mother took me to see RADM Byrd, Paul Siple, et al, on stage and with artifacts and movies, when I was about five or six, plus or minus in 1931-32.

Maybe I'll get to "The Ice" yet, but as of now, *The Polar Times* has to keep me up to speed.

Capt. C.J. Rabideau, USNR (Ret.)
Pasco, Wash.



SOUTH POLE DOME

The South Pole Dome has symbolized America's presence in Antarctica for over 25 years. Plans are currently in progress to dismantle the dome and ship it back to the United States for disposal (see article on page 6). The American Polar Society supports the concept of rebuilding the dome in the United States to house a National Antarctic Center similar to the International Antarctic Center in New Zealand (see page 9). Is there a community out there prepared to address such a project on behalf of the nation?